



SUDBURY TOWN PLAN

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Sudbury Town Plan

Town of Sudbury Planning Commission – 2017/2018

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The Sudbury Town Planning Commission holds its regularly scheduled meetings on the first Tuesday of the month at 7 p.m. at the Sudbury Town Clerk's Office, unless otherwise noted. Special meetings are warned to the public at the Town Clerk's Office.

Technical Assistance by the Rutland Regional Planning Commission



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INTRODUCTION

The Sudbury Town Plan

A Municipal Development Plan, once approved by the Sudbury Planning Commission and duly adopted by the town, is the official policy of the community with regard to future growth and development. Adoption of the Plan is the only means available for the town to legally establish growth and development policies. It is intended that the Plan be used in a positive manner; as a tool in guiding the direction of growth in a way that is both economically feasible and environmentally acceptable. The Plan, by identifying unique and fragile areas, or those regions of high scenic, natural, or historic value, seeks to guide development by respecting both the potentials and constraints offered by nature.

Because town planning has been characterized as a flexible, continuing process, the Sudbury Town Plan should be reviewed from time to time and may be amended in the light of new developments, regulations and changed conditions affecting the community. The Town Plan shall expire and have no further force and effect on the date five years from the date of adoption. However, the Plan may be readopted in the form as expired or about to expire, and shall remain in effect for the next ensuing five years or until amended.

The first Sudbury Town Plan was launched in 1969 when the first Planning Commission was created. It was adopted in 1971 and was updated in 1983, reinstating the original goals. The next plan, in 1991 sought the input of the residents through public meetings. The plan was updated and adopted in 1994, and readopted in 1999. A survey was distributed to the residents from the

Planning Commission with the Town Report in February 2003, and an updated plan was adopted in December of 2013. The current plan was informed by a community forum held in Sudbury on March 24, 2015. The forum invited the public to discuss the town plan and the community's vision for future development. Public input from the event has informed the update of this plan and is referenced throughout.

The 2018 Sudbury Town Plan will be implemented through (1) the Unified Development Ordinance and other land use controls, (2) inclusion in the capital improvements budget as part of the Town's financial planning process, (3) cooperation with other government agencies, and (4) further studies.

Planning Bylaws

As a policy document, the Plan is the overall guide and framework for the community, providing the legal as well as the conceptual basis of all land use control. The specific regulatory controls are accomplished by the enactment of bylaws including the Unified Development Ordinance and/or an official map. Since the Unified Development Ordinance is intended to implement the Plan, its content reflects the findings, recommendations, and policy statements embodied in the Plan.



Specifically, the Unified Development Ordinance serves to channel growth into the areas most appropriately suited for such use as determined in the town plan maps. Through the criteria established in Act 250 relating to minimum environmental standards, construction within the various zones is regulated. Zoning regulations are the basic tools used in reconciling the inherent capabilities of the land with prospective use. Sudbury adopted Permanent Zoning Regulations in 1969 and Subdivision Regulations in 1997. In 2007, the Unified Development Ordinance was drafted, consolidating the regulatory components to achieve the goals set forth in the Town Plan.

Planning in Vermont

The Vermont Planning and Development Act, enacted in 1968, was largely a response to the rapid and unplanned growth throughout the State in the 1960's. Foreseeing a crisis approaching on both the economic and environmental fronts, the Vermont Legislature enabled municipalities and regions to encourage the development of all lands in the State by the action of local municipalities and regions, with the aid and assistance of the State, in a manner which will promote and enhance the quality environment of Vermont living.

In terms of its significance in relation to State land use controls and growth policy, the Town Plan plays a key role. Vermont's Act 250, hailed as pioneer legislation in the area of land use regulation, includes provision for a review procedure through which all applications for subdivision and development must pass. During the review process, the feasibility of each project is weighed against ten criteria, guidelines set forth as environmental and economic safeguards. The ninth criterion requires that any subdivision or development must be in conformance with a duly adopted development plan, land use or land capability plan which exists on the state level. The

tenth criterion insures that the proposed development is in compliance with the policies set forth in the regional plan and the more detailed local town plan. In this way planning and development at the three levels of government, state, regional and local, are integrated to form a consistent approach to the problems caused by rapid growth.

The Sudbury Town Plan is an integral part of the regional and statewide planning process. In adopting the Town Plan, citizens of Sudbury may anticipate the future with the knowledge that a significant step has been taken in the development and preservation of their community. The Plan was prepared in conformance with the requirements in the Vermont Municipal and Regional Planning and Development Act (*Title 24, Chapter 117 Section 4382. The plan for a municipality.*) As well, the Sudbury Town Plan is consistent with the Rutland Regional Plan, adopted in June of 2015, and is also compatible with approved plans from surrounding communities. Following adoption by the Town, the Plan is then submitted for formal regional approval to the Rutland Regional Planning Commission.

Purpose and Objectives

It is the purpose of this Plan to guide future growth and development within the Town of Sudbury by providing a framework of planning policies and recommendations which will assure that decisions made at the local, regional, and state levels are consistent with goals of the Town. The following vision represents the community's intentions, based on input from Sudbury residents.

The first goal is the development of a community that allows for residential growth which coexists with small businesses and farming while maintaining a rural character. This is achieved with the following specific objectives:

Sudbury Town Plan

- Maintain the ten acre zoning
- Identify, protect and preserve historic, cultural and environmental resources
- Support and encourage existing farms which create a rural atmosphere
- Preserve open space
- Encourage small business development and the creation of a village center

The second goal is to safeguard and improve the quality of life through health and environmental standards.

- Protect all water sources from pollution
- Ensure all septic systems conform to the new State regulations and standards
- Identify conservation areas and consider new areas to protect that are of historic, scenic and environmental significance

The third goal is to make efficient use of all town resources.

- Maintain existing facilities
- Identify improvements and possible funding sources
- Inform and increase awareness of the people of the monetary and environmental advantages of recycling
- Improve and expand recycling facilities

The fourth goal is to protect private property owners' rights.

History

Sudbury is located in northwestern Rutland County, abutting the towns of Orwell to the west, Brandon to the east, Hubbardton to the south, Whiting to the north, Benson to the southwest and Pittsford to the southeast.

For more than 8000 years Indians continuously occupied the broad fertile valley of the Wonakake-

Took or Otter Creek. When the first white settlers came it was called "The Indian Road" because raiding parties used it. By mid-1700s many local Indians had died of disease, mainly small pox, and both settlers and Indians used the creek for transportation. Indian artifacts have been found along the banks of Otter Creek and on the shores of ponds and lakes in Sudbury.

The Town of Sudbury, a New Hampshire grant, was chartered August 6, 1763 by Benning Wentworth. On September 6, 1763, the first meeting of the Proprietors of Sudbury was held at Captain Silas Brown's house in Sudbury, Massachusetts as it was stated in the charter; Brown was responsible for securing the charter on behalf of 47 of his associates. Most of Sudbury's charter names can be traced to the French and Indian War military records. Some names appear on the charters of neighboring towns. Brown's name for example, can be found on Whiting's charter.

The grantees were predominantly from the general Boston area; consequently, the early Town and Proprietors' meetings were held in what was then the Massachusetts Bay Colony and New Hampshire, including Sudbury Mass., Newton, Watertown, Andover, Newmarket, Haverhill, and Kingston. And the practice of distant meetings occurred up until 1781 in spite of those who had actually moved into the town.

At the first meeting at Brown's house, a committee was elected to lay out the lots and erect the bounds of Sudbury. The committee was comprised of Captain Silas Brown, Captain Joshua Fuller, Henry Gardner Esquire; and it also included the help of Tabez Brown, Lieutenant Michael Jackson and Joseph Beeman. The result of the committee's trip to the town not only created a map for pitches to be made, but it also resulted in what became a landmark in the area -- Brown's Camp. The lotting committee must have camped and thus named the Brown camp location while they surveyed the

Sudbury Town Plan

wilderness and the spot -- somewhere in the vicinity of the foot of Miller's Hill, retained the name throughout the Revolution. At the second meeting held on December 6, 1763, the committee submitted a bill for their services, on which stated their services consumed thirty-three days.

The camp was located along the Crown Point Military Road, which was the only road through the town at the time. There are many mentions of the location from the travelers on this road during the Revolution. The road is of high historical value as all of the first settlers of this wilderness were located close to its path.

The Crown Point Road (CPR) was constructed during the French-Indian War. It connected Fort Number Four in Charlestown, New Hampshire, to the Fort at Crown Point on Lake Champlain. Brown and many of his associates had undoubtedly passed through Sudbury on the Crown Point Road on their way home from the fort at Crown Point during the French And Indian War, at which place many were stationed during the years the road was being constructed.

At the March 8, 1775 proprietors' meeting the existing lotting of the town and all pitches made in 1763 was declared null and void. A committee to draw up a new plan of the town was voted and one to repair the roads in Sudbury which consisted of Timothy Miller, Daniel Chaney and Joseph Morse. It was at this time when the "range map" was drawn, a photostat of which still exists in the town's vault.

The range map shows the location of what had become two roads - both historically significant: The Crown Point Road, and the Ticonderoga Branch Road.

The CPR (1759-60) enters Sudbury in the southeast corner of town near Stiles Mountain; from there it crosses over the lands now owned by the Robert

Ketcham estate, continues across the Willow Brook Road running close to the road's present path towards the foot of Miller Hill. Along that stretch are Timothy Millers' original settlement (sold to Thomas Ketcham) and the Revolutionary troops famous stops, "Cold Spring" and "Brown's Camp." The road then crossed over near the present Sudbury School and continued northwest into Whiting en route to the fort at Crown Point.

The Town meeting records that still exist begin with folio 5 of a meeting held in 1792, and histories of the town written in the nineteenth century reported that pages were already missing; however, a copy of the elected Town officials was recorded in the Proprietors' records (which has survived and the Historical Society now has a copy). The evidence of those named in the minutes suggests Sudbury was already inhabited by at least 1775. Some of the names of those who were present were: Daniel Chaney, Timothy Miller, John Butterfield, Samuel Hammond, Joseph Morse, John Gage, and Benjamin Wiswell.

John Gage represented the town at the famous 1776 Dorset Convention. Wiswell and Miller are the only two family names from the New Hampshire charter that are known to have settled the town before the Revolution. Wiswell's property was at the crossroads of the Crown Point Road and the Ti branch road on or near the old Selleck farm (near the present location of Sudbury Country School); Wiswell's was marked on a map drawn for the British General Burgoyne in 1777. Walter Crockett in his *Vermont the Green Mountain State*, stated the evening before the capture of Ticonderoga, Ethan Allen and the Green Mountain Boys met at a Wessell's house across from Ticonderoga but he may have misreported the site to be in Shoreham. Sudbury at that time bounded Shoreham's southeast corner; and numerous misspellings of Wiswell abound in military historical records mentioning overnight stays suggesting it was a tavern of sorts.

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The Ti branch ran from the CPR at Wiswell's west to Lake Champlain and remnants of this historically important part of Sudbury remains on the lands of the Vail house on the north side of where the present D.A.R. marker is located.

Miller settled originally where the CPR crossed near Punk's Hole. When Burgoyne captured Forts Mount Independence and Ticonderoga, Sudbury's settlers who were still in town, rather than stationed at one of the forts, probably abandoned their homes at least during the short British occupation of the forts which ended in November of 1777. Both Wiswell and Miller served in Vermont's Revolutionary militia and were at Fort Vengeance in Pittsford at times during the war. One Daniel Chaney, not listed in the Goodrich *Vermont Revolutionary Rolls*, was at Mount Independence during 1776 (*Wayne's Orderly Book*).

The first meeting actually held in Sudbury, Vermont cannot be positively confirmed. A lapse of the records during 1782 prevents that fact from being confirmed; however, the first known meeting of any sort held in Sudbury, Vermont was held following the close of the war at Timothy Miller's house on October 8, 1783 where the following officers for the propriety were elected: Jonathan Hunt, Moderator; Asa Smith, clerk; Timothy Miller, collector; Orlando Bridgeman, Asa Smith, and Timothy Miller, committee for laying out roads. Additionally, Major Jonathan Hunt was elected to go to the former clerk (in Massachusetts) and retrieve the records and town plan which suggests this was indeed the first meeting in the town and that future meetings would from then on be held in Sudbury, Vermont.

The pages recording the minutes from the first town meetings were already missing in 1881 as reported in *The Gazetteer and Business Directory of Rutland County* of which it stated, "The first record

of any town-meeting dates back to January 15, 1789, at which time John Hall was chosen moderator; but this was not the first meeting held, for some pages of the fore part of the book are missing," (p. 239). Indeed, it is fortunate some note was made of the pages; as of now, the first legible pages that exist of town meeting minutes dates from 1792.

Additional names from an October 7, 1784 meeting of the *Proprietors Minutes*, states: Benjamin Wiswell, Francis Butts, Christopher Cartwright, Thomas Ketcham and Timothy Miller were settled upon the second division of lots (by at least 1775). This mention of Cartwright is the only record found of his existence; no land records exist of his buying or selling which suggests even the land records have lapses.

A boundary dispute with the town of Orwell -- another New Hampshire charter granted 12 days after Sudbury, resulted in Orwell's favor (mentioned at a June 16, 1785 proprietor's meeting) and Sudbury lost a considerable amount of land all along its western border.

The close of the Revolution brought many settlers to Sudbury. By 1786 the following new names (from minutes) had settled in Sudbury: John Taylor, John Hall, Benjamin Sanders, Platt Ketcham, Joseph Warner, and Jeremiah Gates. By 1790, according to the *First Census Of The United States*, there were 47 families with a total population of 258.

Roger Burr, who settled in Sudbury in 1784, was the first settler in the town south of the original hamlet. This portion of the town was covered with a dense wilderness which was occupied by numerous wild animals including bears and wolves. It is said that while establishing his first camp, Burr and his helpers slept in hollow logs for protection from the wolves. Later the wolves made the keeping of sheep very difficult. Burr established a sawmill at

the outlet of what is now Burr Pond. He took an active part in the building of Sudbury's first church with most of the timber being from his land and sawed into lumber at his mill. He also built the first two story wood frame house in town just up from his mill. It had second story windows and half-length side windows flanking the entry way. This house has been in the Steele family since 1900.

Some of the earliest activities of the town were farming, hunting, trapping and assorted business operations. These included a cider mill, a store in the middle of town, a gristmill in the north, a tannery which manufactured potash, two sawmills (one established by Roger Burr at what is now Burr Pond, and the other at Huff Pond), a post office, a tavern and a church.

Sudbury Meeting House

Reverend N. R. Nichols gave a detailed description of the building of the meeting house in the published 1907 *Centennial Celebration of the Sudbury Meeting House*. The following is taken from his presentation: "The building was voted in 1803, the land was donated by Apollo Rollo, an Orwell resident. The lumber came from Roger Burr's mill and the initial load of lumber was brought by Lyman Felton. The first record of any service held in the church found by Reverend Nichols dated from June 5, 1807."

Hyde Manor

Stephen Mills of Castleton built and opened shortly after 1798 the town's first licensed tavern on lands where the present Hyde Manor is situated. In 1801 he sold to Arunah and Pitt Hyde what went on to be a famous summer resort for the wealthy during the nineteenth and twentieth centuries. Present day Route 30 was then a post road, improved by 1805 to turnpike status thereby increasing stage traffic. The original tavern was replaced during the Civil War years with the Italianate structure that still

exists. The many outbuildings date throughout the second half of nineteenth century and the houses bordering to the south and north were part of the Hyde's many holdings as well. Other Hyde families moved to the town also.

The Hydes played an important role in Sudbury's history throughout the nineteenth and twentieth centuries. Besides the economic contributions the hotel brought to the town, many of the town records were recorded by Pitt and James Hyde as they held various positions in town offices. Before the Civil War, the tavern held numerous balls offering a night out for early Sudbury residents. Neighboring town residents from Brandon, Orwell, and Hubbardton attended these events as well.

Back before the automobile, summer guests upwards of 300 stayed a month or more and the demand for local labor employed at the hotel provided many Sudbury residents with revenue or a supplement to farm incomes including the unprecedented hiring of small girls as caddies on the golf course before the turn of the century.

The first golf links, built sometime in the latter part of the 19th Century, were located behind the hotel on the steep hills. This course was replaced in 1909 because it necessitated too great a physical exertion to be considered recreational; the newer course was moved west of Route 30.. It was on this course where a virtual unknown registered his name when he entered the 1909 U.S. Open under the Hyde Manor Golf Course and won, (*Golf Illustrated*, Aug. 1927).

Church records indicate Hyde Manor's importance of filling both the pews and the plate as there are numerous mentions of Hyde guests' generosity throughout both the 19th and 20th centuries. Since the start of the Industrial Revolution before the Civil War, Sudbury's population, like most other towns in the state, had begun a decline due to emigration to the west. Hyde Manor remained in

the Hyde family up until 1962 when the present owner bought it.

Historical Perspective

Throughout the years Sudbury has supported as many as five primary grade school houses - the Stone School at the corner of Route 73 West and Route 30 is probably the oldest (dated 1829), Burr Pond School, the North School, Punkhole or Willowbrook School, and the Webster School. As the years passed, these were closed or consolidated and in 1981 Sudbury acquired a piece of property from the Selleck family and built the Sudbury Country School. High school students went to Brandon High until 1961 and then to Otter Valley Union School with the class of 1962.

The Sudbury Town Clerk's office was opened on September 26, 1975. The previous office was in the home of Harold and Stella Selleck. Research shows that Sudbury has had a post office in at least three locations, a library in at least two locations, two or three physicians, and several boarding houses as well as Hyde Manor Hotel and the Sudbury Inn.

Town organizations which have existed include, the Elizabeth Pool P.T.A., changed to P.T.O. and finally disbanded; the Bicentennial Committee (1973) changed to Community Club (1977), changed to Friends of the School (1981); Ladies' Aid; Ladies' Circle; Grange Historical Society; Recycling Project; and the Sudbury newspaper.

Sudbury has had its share of special functions from card and Bingo Parties to aid the earlier schools, to Ladies' Aid Bazaar and Food Sales, Ice Cream Socials, Spaghetti Suppers, and the Annual Road Race, started in 1982.

Sudbury has had many businesses. This is a partial list to indicate both past and present. There have been at least two saw mills, a marble quarry, two dance halls, a creamery, three or more country stores, antique shops, roadside stands, taverns,

cabin rentals, and a turkey farm. Currently in town there is an auto shop, bait shop, beef farm, real estate office, well driller, custom meat cutting business, cabinet maker, sheep, goat and alpaca farms, dairy farms, general contractors, caretakers, a concrete foundation business, electrical and paint contractor and specialty home building.

COMMUNITY PROFILE

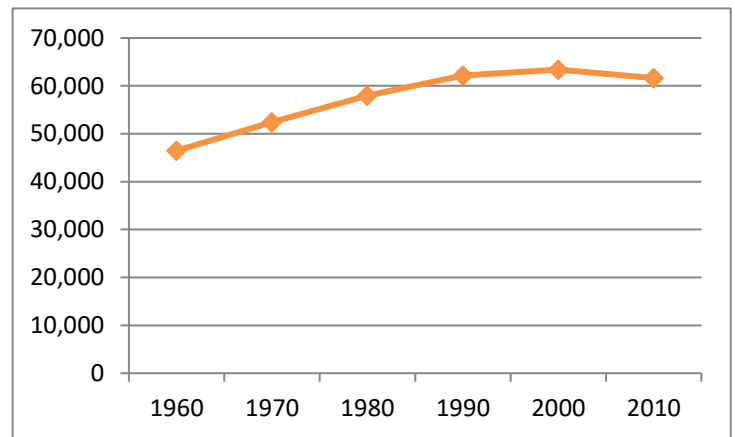
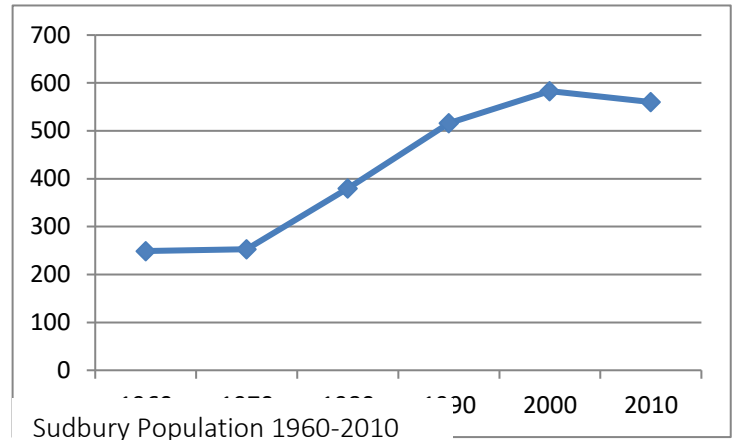
Population

Despite being one of the smallest towns in the Rutland Region, from 1970 to 2000 Sudbury's population increased 43.4%. However after 2000 there was a slight decline (-3.9%) in population, to 560 people in 2010. Rutland County also experienced a population decline of -2.8% from 2000 to 2010, while the state as a whole grew by 2.8% during that decade.¹

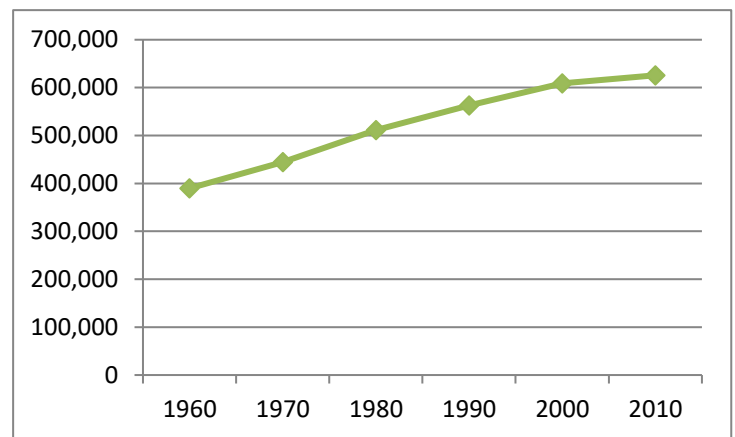
Age Distribution

Two significant demographic shifts have taken place in Sudbury over the past few decades. While much of the population base has remained relatively stable, there has been a clear increase in the median age from 33.3 in 1990, to 42 in 2000, to 51.2 in 2010.¹

Also in 2010, those 65 and over represented 20.2% percent of the total population of Sudbury, while that age group represented only 12.5% in 2000.¹ Sudbury, as elsewhere across the country, will likely continue to see its population age in the future which will increase demands on services.

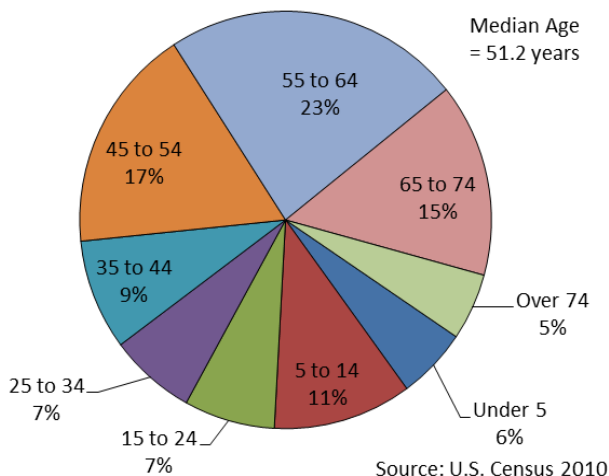


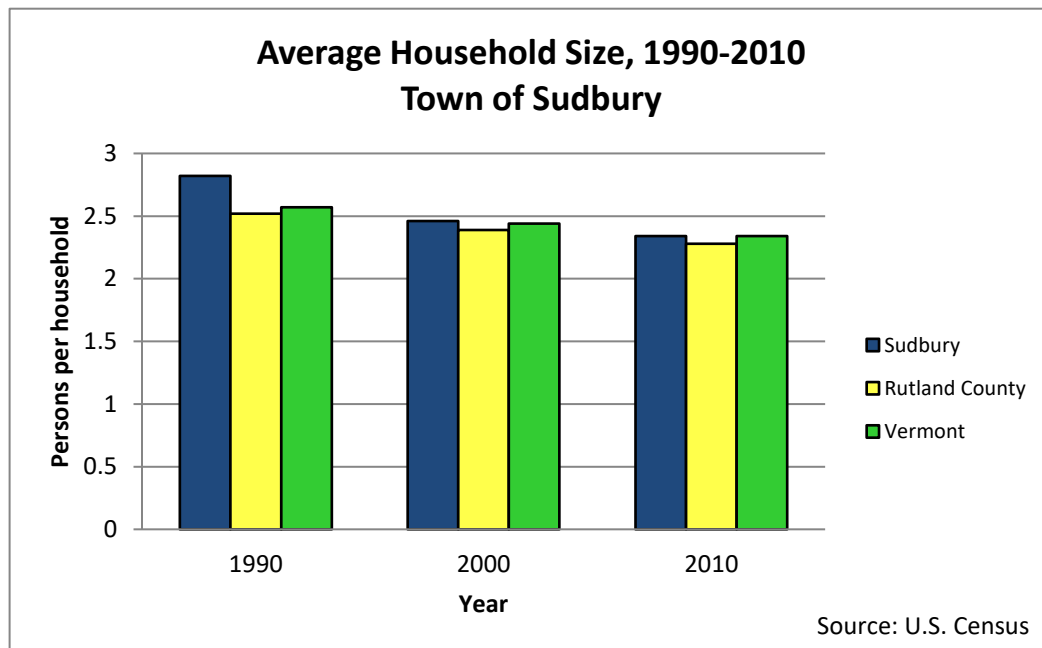
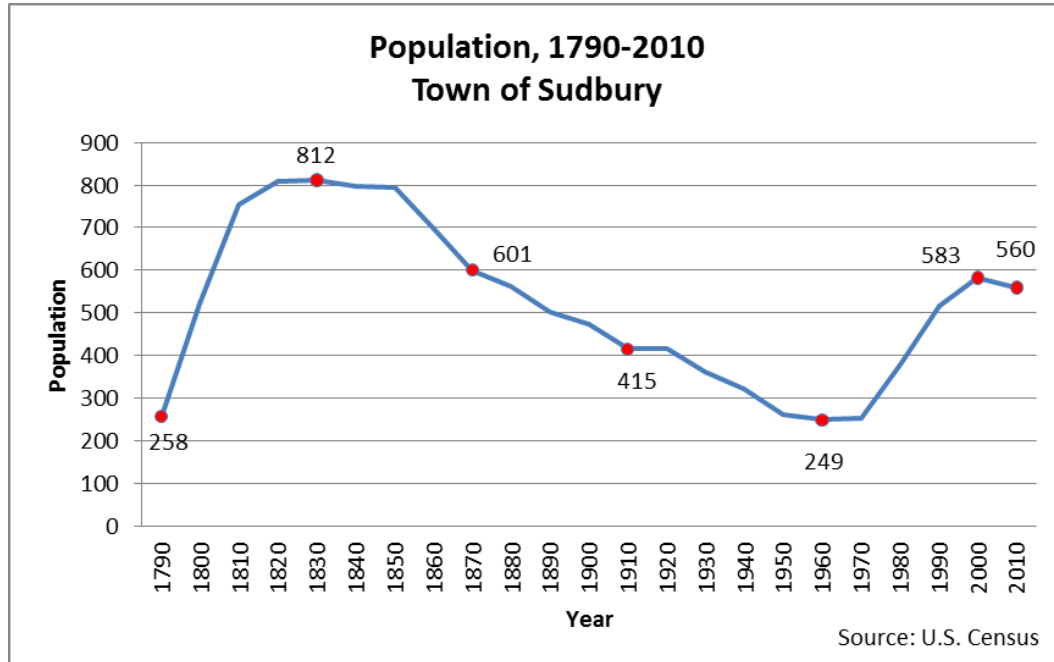
Rutland County Population 1960-2010



State of Vermont Population 1960-2010

Age Distribution, 2010 Town of Sudbury





Density

The density of Sudbury has increased since its low in 1960 of 11.58 persons per square mile, and it was 25.23 persons per square mile according to the 2010 Census.¹

There were 239 households in 2010, which is almost the same number of households as in 2000 (237). The average household size decreased from 2.46 persons per household in 2000 to 2.34 persons in 2010. This is consistent with trends in both the Region and State.¹

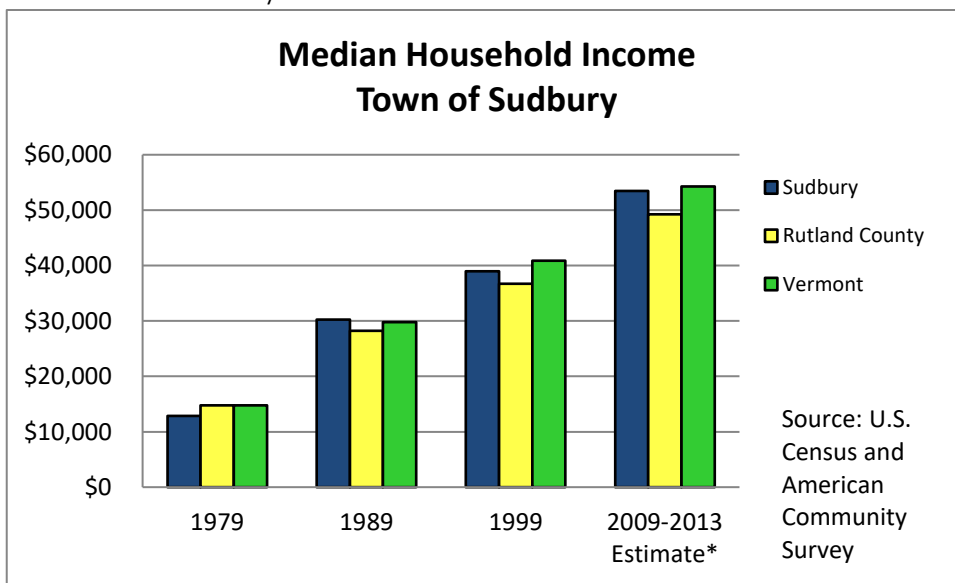
Families

Sudbury had 173 families in 2010 with an average size of 2.69 persons. This is slightly smaller than the State's average family size of 2.85 persons and the Region's (2.81 persons). Family households represented 72.4% of all households in Sudbury.¹

Income and Poverty

The estimated median household income between 2009 and 2013 was \$53,462. This was above the County's median household income of \$49,271, but below the State's (\$54,267).¹ A household is defined to include all people who occupy a housing unit as their usual place of residence.

Family, a subcategory of household, is defined to be a group of two or more people who reside together and who are related by birth, marriage or adoption. The estimated median family income in Sudbury between 2009 and 2013 was \$55,417. This shows that those residing in families rather than households had a slightly higher income. An estimated 2.7% of the town's population had an income below 50% of the poverty level.¹

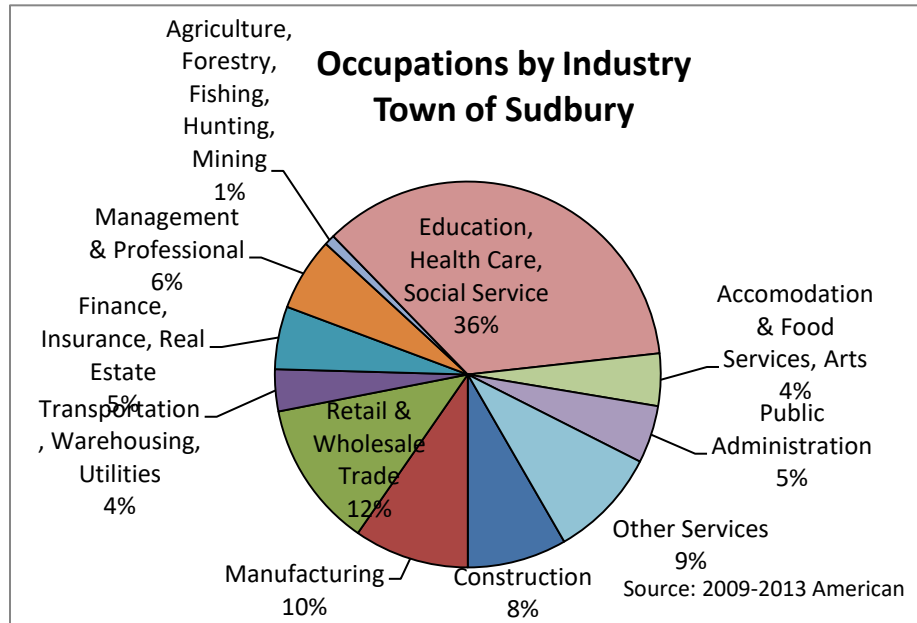


ECONOMIC DEVELOPMENT

The state of the economy and economic development can be a challenge in a small rural town such as Sudbury, but they are important parts of the town's planning for the future. Economic development, once the sole province of the private sector, is the process by which the community sets out to improve the climate for retaining old and attracting new businesses that support jobs and sustain tax revenues. Like many other municipalities in Rutland County, Sudbury derives most of its revenue from the taxation of local property in order to support municipal services. While the town budget is small and the town services are limited, they are no less affected by local, regional and national economics. Sudbury, like other Vermont communities, will need to be more active in managing economic growth to ensure the future of its tax base and quality of life.

Labor Force

From 2009 to 2013, roughly 228 Sudbury residents were employed in the labor force, 30 of whom were self-employed, 163 were private wage and salary workers, and 35 were government workers¹. All of Sudbury's employed residents worked outside of town, and 14 people worked in Sudbury but live elsewhere². Approximately 47% of Sudbury's employed residents work in Rutland County, primarily in



Rutland City, Castleton and Fair Haven, and about 12% travel to Middlebury for work (in Addison County)³.

Sudbury has a small number of businesses located in town, and most year-round residents are either employed in neighboring communities or rely on home occupations, construction, seasonal businesses, farming or natural resources production (such as forestry) for their livelihood. For a breakdown of residents' occupations by industry see the chart below.

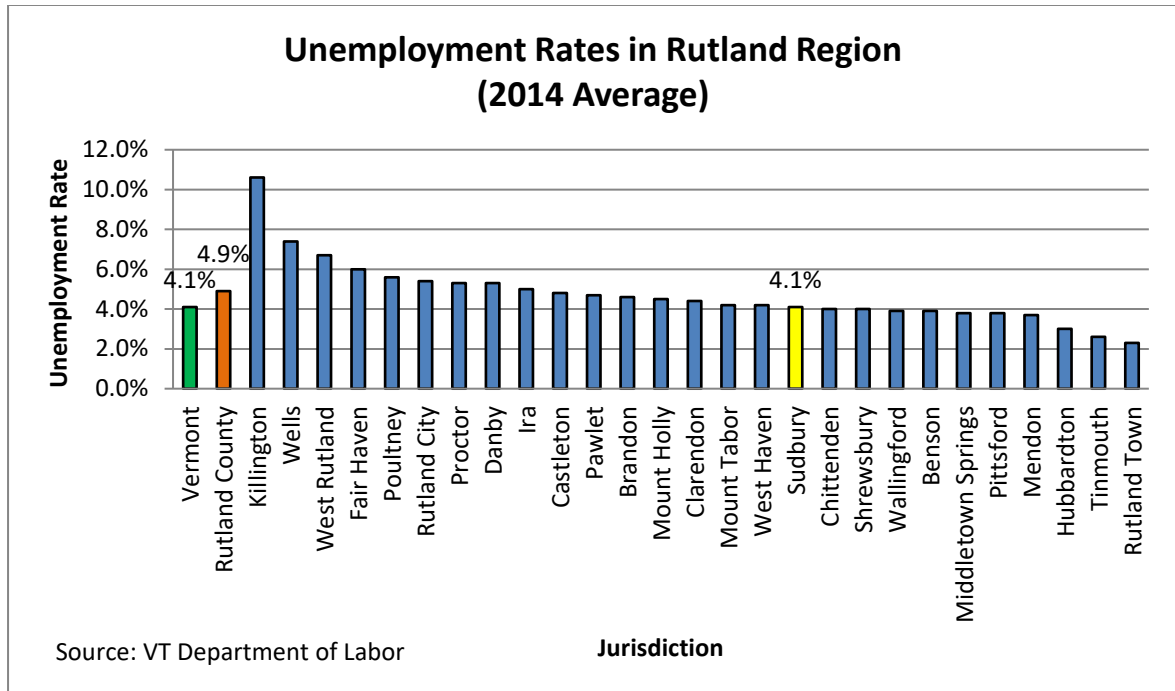
Throughout 2014, Sudbury's average unemployment rate was 4.1%, which was identical to the statewide rate, and lower than the Rutland County rate of 4.9%⁴.

¹ American Community Survey 5 Year Estimates

² US Census

³ US Census

⁴ American Community Survey 5 Year Estimates



Business

Sudbury is primarily a residential community with an agricultural heritage. Presently agriculture is practiced in the form of small-scale diversified operations ranging from dairy, replacement heifers, organic vegetables, fresh cut flowers and horse farms. There is one large-scale beef farm.

Current zoning bylaws do not identify a commercial district but prospective businesses can apply for conditional use permits in the residential zones. As examples, there is a well drilling company and an excavation business in the village residential district; a tree nursery, meat cutting and retail shop, and graphics design businesses plus the aforementioned agricultural businesses in the rural residential district. Most of Sudbury's businesses are home-based and there are good relations between residents and commercial enterprises. Townspeople recognize the need for employment opportunities in town and business owners understand and abide by the conditions

allowing them to operate in the residential zones.

The employment and the tax revenue generated from local businesses is small. Year round residences and camps/homes on Lake Hortonia, Burr Pond, Echo Lake and Huff Pond account for the most of the revenue for the town in the form of property taxes. There is no grocery store, gas station, post office or any commercial establishment in town that people would normally frequent on a regular basis for the essentials for daily living. As a result, there are limited opportunities for locals to interact on a casual social basis and discuss the challenges the town faces and envision new possibilities. Finally, there is no chamber of commerce or development organization working to attract and retain businesses in Sudbury.

Child Care

Ensuring accessible, affordable, quality child care is integral to sound economic development planning. Many families lead lives that require some type of childcare outside the home. Recognizing this reality, child care is a critical community need. Investments in the child care infrastructure, like investments in the infrastructures of transportation, public works, affordable housing and education, can have direct positive effects in the growth and vitality of the community.

In Sudbury there are no registered or licensed child care facilities.¹ To understand better the need, an analysis of the number of children estimated to need care, and the type of care needed is necessary. In 2010 there were 92 children under the age of 15 (see table below). Families with children under the age of 18 comprised 22.6% of Sudbury households.²

Children in Sudbury

Age	Population
Under 5 years	31
5 to 9 years	26
10 to 14 years	35
15 to 19 years	24

Source: U.S. Census 2010

The employment status of families with children can also affect their childcare needs. In Sudbury, approximately 22% of the population is employed by service sector jobs.³ Parents working in this sector may need child care services that are available during non-traditional hours (evenings, nights and weekends). While some or all of this need may be met through informal childcare arrangements, these can be unstable and lack the quality control offered by

the registration and licensing process.

It is difficult to assess the need for child care facilities in Sudbury because all employed residents commute to other communities for work. It is assumed that many of these parents choose to have their children cared for in facilities near their workplace. Throughout the Rutland Region there are approximately 85 registered home care providers and 69 licensed child care centers, which include early childhood and school-age care programs. Rutland City accounts for nearly half of the capacity of the region's providers, with 30 registered homes and 27 licensed centers.⁴ To improve the quality of services, Vermont has established the STep Ahead Recognition System (STARs) program to recognize regulated child care, preschool, and afterschool programs that take measures to exceed state standards in providing services to children and families.

There are critical issues regarding child care that should be considered in Sudbury. First, low income families have difficulty accessing child care and afterschool programs, due to financial constraints, lack of transportation, and the demands placed on working parents. Middle income families also struggle to pay for child care. Statewide from 2003 to 2012, market rates for a preschool age child in a licensed child care center increased from \$140 per week to \$200 (42.9% increase), and rates for a preschool age child in registered home care increased from \$106.25 to \$150 per year (41.2% increase).⁵ Another deficiency is specialized child care services for infants as well as children with special needs. Lastly, child care providers struggle financially due to insufficient state and federal funding, and workers are paid relatively low wages.

¹ Vermont Bright Futures Child Care Information System

² U.S. Census 2010

³ 2009-2013 American Community Survey 5-Year Estimates

⁴ Vermont Bright Futures Child Care Information System

⁵ Vermont Child Care Market Rate Survey, 2012

Future Trends and Challenges

Most Sudbury residents indicate a desire to maintain the rural and agricultural character of the town. Ten-acre zoning in the large rural residential district works to reinforce this vision by limiting high density housing developments. The small village residential district is zoned for one acre lots and there is developable acreage along the Route 30 corridor. Sudbury's small population and limited growth potential and no recognized business district are contra-indicators for retail businesses that rely on the local people or the traveling public to succeed. Creative and niche businesses that market and sell through the Internet to a national or a regional audience is the trend for new startups in town. The country lifestyle that Sudbury offers is something that people are increasingly valuing especially now that the Internet provides the opportunity to work from home. Most new Sudbury residents build new houses since the stock of existing homes is limited and aged. New construction also comes from seasonal camp owners adding-on to or improving their buildings, and occasionally camps are converted to year-round residences.

With limited economic opportunities in town to attract young families, Sudbury's demographic shows an aging population. The number of elementary school age children has decreased to the point where the school board may have to consider consolidation to continue to meet the educational needs of the students and keep the per pupils costs at a level the voters will support. The Sudbury School is a focal point for the town as it is the one unifying institution that brings the community together. The parents especially are galvanized around fund raising efforts and developing enrichment programs for the students.

Any new development needs to take into account the very limited facilities, services and utilities offered by the Town.

Economic Development Goals and Objectives

Goal 1

Identify and plan a village center to provide some impetus for creating a greater sense of identity for Sudbury.

Objectives

- Encourage the Planning Commission to review the makeup of the Village Residential district with an eye towards adding language and provisions for designating a village center with a commercial sector.
- Make greater use of the Sudbury Meeting House for community events.
- Create a town park in the village district for outdoor events and social gatherings.

Goal 2

Encourage local businesses and strive to diversify the local economy. Encourage the growth of the "informal economy" and support home-based businesses, local artisans and craft people and seasonal businesses within the residential zones.

Objectives

- Continue to promote the understanding that businesses are welcome in the residential districts. In fact, these are the only zones where they are allowed.
- Seek ways to improve wireless internet service and cell phone communication, consistent with other aspects of the town plan.
- Create a registry of local businesses and

publicize the list in locations such as Sudbury's Facebook page, on Town bulletin boards, and in the Town Clerk's office.

- Encourage the creation of local child care facilities as needed.

Goal 3

Protect the natural beauty and historical integrity of Sudbury.

Objective

- While the town should encourage economic development, decisions regarding the future of Sudbury should always take into consideration the importance of maintaining the woodlands, streams, lakes, natural vistas, and historical features that are so appealing to current residents and that attract new residents to Sudbury.

Goal 4

Become more involved with development and planning agencies in the state and region.

Objective

- Ensure Sudbury is represented on the Rutland Regional Planning Commission. Membership would improve the awareness of development and planning grants that are available to grow the town and provide a link with other towns to learn what they are going to stimulate economic development.

Goal 5

Given the correlation between strong economies and the availability of child care, help ensure that safe and affordable care is accessible to working families.

Objectives

- Assess the need for local child care providers.

HOUSING

Existing Conditions

Sudbury's residents live, for the most part, in single-family housing located along the few roads that traverse the town. There is a slight, but by no means large, concentration of housing at the junction of Route 30 and Huff Pond Road.

According to the US Census, housing units in Sudbury are predominately single-family detached homes. Of the total 392 units in 2010, approximately 96% were single-family, and 3.5% were mobile homes.⁶ Sudbury also has a few two-unit structures (usually duplexes). Sudbury's 5% increase in total housing units is roughly matched with the Region's increase of 4.5% in housing units from 2000 to 2010.

Owner occupancy rates have increased significantly over the past decade from 61% in 2000 to 91.6% in 2010, while renter occupancy rates decreased slightly from 10% to 8.4% in that same time period. There has been an increase in vacancy rates, from 136 vacant units in 2000 up to 153 units in 2010. It should be noted that many of those vacancies are due to vacation or seasonal units, as discussed below.

Seasonal units make up a third of Sudbury's housing units, and this figure has remained steady over the past decade. In 2010, 132 units (33.7% of total housing units) were seasonal, while in 2000 there were 123 seasonal units (33.0% of total units). The high percentage of seasonal homes is nearly double the Region's percentage of seasonal units (17.1%) compared to year-round occupancy. Seasonal housing units typically have fewer rooms than year-round housing units.

Households

Sudbury is composed predominantly of family households. In 2010, there were 239 households in Sudbury and a total population of 560 persons. Families made up 72.4% of the households. The average household size in Sudbury was 2.34 persons, which was consistent with the State and slightly higher than the County (2.28) figures; this represents a decrease in Sudbury's average household size from 2.46 people in 2000. The decreasing household size will have an impact on the future housing needs of the community. The average Sudbury family size in 2010 was slightly higher, at 2.69 people.

In 2010, the overall proportion of married couple families with children under 18 years of age represented 16.3% of total households in Sudbury. Non-family households were predominantly one-person households (60.1%).

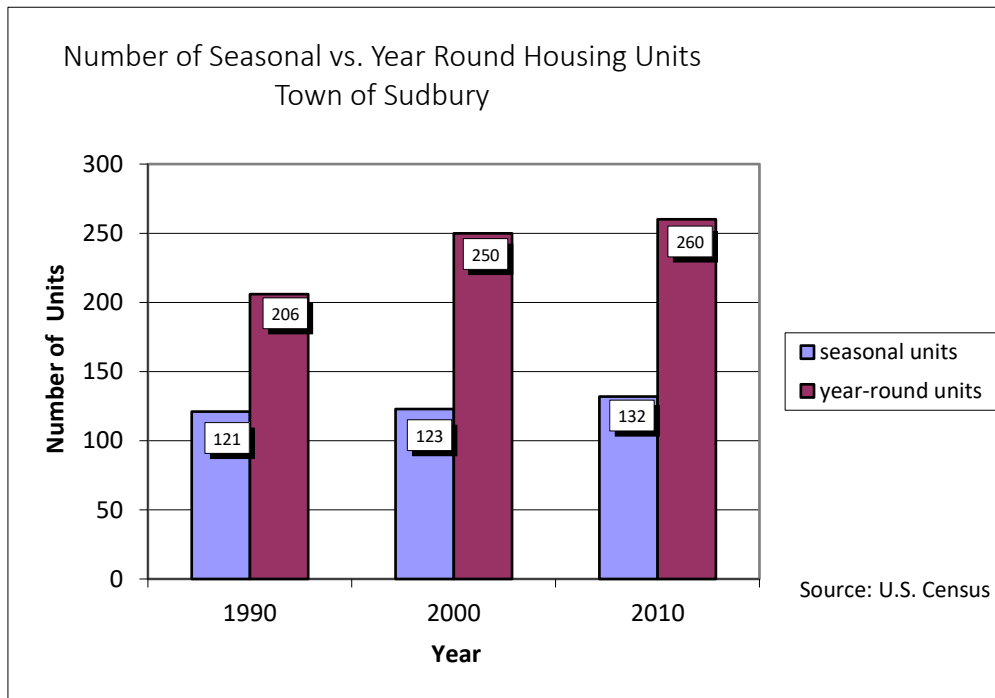
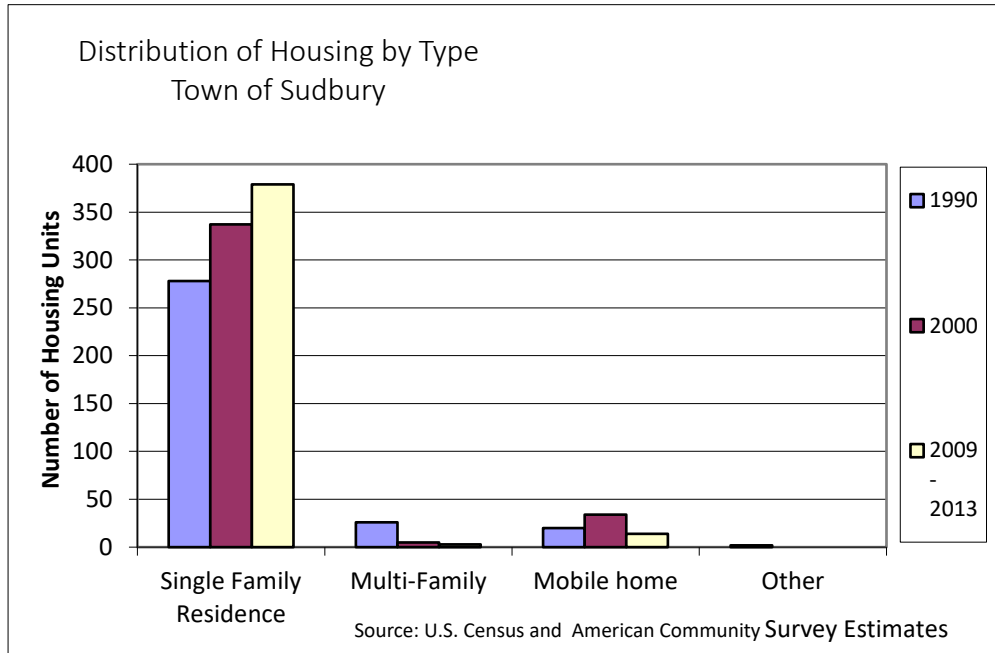
Housing and Population Growth

The growth rates of Sudbury's housing units, households and population (in the table above) mirror the Region as a whole, where county-wide growth rates have stayed comparatively low at 4.5%, 1.2% and -2.8% respectively.

⁶ Unless otherwise noted, sources for the Housing Section include:

US Census
2009-2013 American Community Survey 5 Year Estimates

Sudbury Town Plan



Housing Conditions in Sudbury

Overcrowding

In Sudbury, sample Census data revealed no units where there was more than 1 person per room. Generally, overcrowded housing is not an issue in Sudbury.

Age of Housing

The median year that housing units were built is 1975, and the age of housing in Sudbury varies greatly as shown below. The age of structures is often associated with housing conditions. With nearly half of the homes built in the last 35 years, the structures are generally safe, adequate and in good repair. A survey of housing conditions would lead to a greater understanding of the condition of Sudbury's existing housing conditions.

Substandard Units

An estimated 19 units were listed as lacking complete kitchen facilities and 26 units lacked complete plumbing facilities. It is difficult to determine the condition of Sudbury's housing stock, because of the lack of data concerning upkeep and maintenance of older units, and the possibility of the substandard units being seasonal camps, not year-round residences.

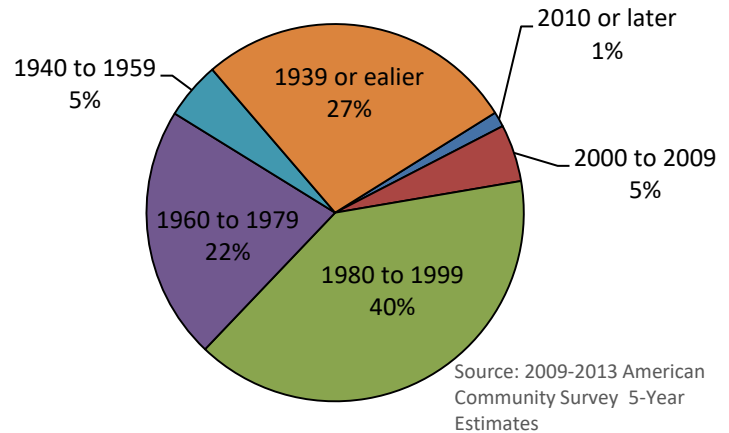
Special Needs Population

In 2010, Sudbury had 15 single-parent households with children under 18 years of age (6.3% of all households in town). Sudbury also had 18 residents over age 65 living alone (7.5% of all households).

The proportion of single parent households and elderly persons living alone in Sudbury is lower than county-wide figures. However, these groups, along with many 'traditional' families,

have been facing an affordable housing

Age of Housing (Year Built) Town of Sudbury



shortage. There is currently no subsidized housing in Sudbury.

Housing Growth in Sudbury

Sudbury's extremely low rate of growth in residential (excluding seasonal) units (0.8%) is close to the county's rate (1.2%) from the year 2000 to 2010.⁷ Sudbury's residential growth will be tempered by physical constraints to development including steep topography, limited transportation infrastructure, the availability of adequate water supply, and the capabilities of the ground to accommodate on-site septic disposal and the minimum 10-acre lot zoning. Generally, Sudbury's development is characterized by low-density housing, located away from steep slopes, wetlands and floodplains. Housing growth is also coupled with housing affordability. Real estate data shows that the median selling price of a single family home in Sudbury in 2015 is \$145,000, while the median selling price in Vermont in 2015 is \$187,000.

⁷ Vermont Housing Data

Future Housing Needs

Community values concerning housing and future development should guide the growth of housing in town. The Sudbury community forum held in March of 2015 showed residents' strong desire to maintain the rural, historical nature of the town. Residents expressed interest in providing more attached housing for seniors. There was support for a village center to encourage a greater sense of community for residents. The group had mixed feelings about the size of building lots - some supported allowing for smaller lots to attract younger people to the area, while others were strongly in favor of the current ten-acre zoning. There was also some support for reducing building setbacks around the lake, while others voiced concerns about overcrowding. In light of these attitudes, Sudbury needs to creatively address its housing needs so that the needs of varying sectors of the population are met while maintaining its traditional rural landscape.

Two area agencies provide services that assist in the acquisition and/or rehabilitation of residential units for affordable housing. NeighborWorks of Western Vermont is located in West Rutland, and the Bennington-Rutland Opportunity Council (BROC) has an office in Rutland. The Town supports the assistance provided by these organizations, and encourages homeowners and prospective homeowners to make use of their services.

Housing Goals and Objectives

Goal 1

Safe, decent and affordable housing should be available in a variety of types that meets the needs of diverse social and income groups.

Objectives

- Encourage a diverse mix of housing

options available to the complete spectrum of household incomes and household types.

- Increase public awareness of housing needs within the community and identify land and buildings within the town that would be suitable for specific affordable housing needs.
- Encourage construction of new and/or rehabilitated housing in appropriate locations, in particular located conveniently to the transportation network.
- Cooperate with not-for-profit housing organizations, government agencies, private lenders, developers and builders in pursuing options and meeting the housing needs of local residents.
- Promote the use of appurtenant accessory apartments within or attached to single-family residences, to provide housing for the elderly and those with physical or mental disabilities.

Goal 2

Encourage preservation, where possible, of the historic character and development pattern of housing in Sudbury.

Objectives

- Encourage home ownership and property upkeep efforts of Sudbury residents.
- Ensure that new and rehabilitated housing is constructed to meet safety and sanitary minimum standards.
- Maintain existing district lot sizes.
- Have information available to residents regarding homeowner assistance programs

HISTORIC AND CULTURAL RESOURCES

Sudbury's Historic Buildings are well documented in *The Historic Architecture of Rutland County, Vermont State Register of Historic Places - Sudbury* published by the Vermont Division for Historic Preservation. The Town has thirty-seven sites listed on the State Register of Historic Places. Many early 19th century historic farmhouses in addition to the village structures (Church, school, Town Hall) and the resort-related developments, including Hyde Manor and its cluster of buildings and other structures serve to enrich our understanding of the importance of Sudbury's rich architectural heritage. Unfortunately Hyde Manor is deteriorating at this point in time.

At present historic sites and structures are offered a limited degree of protection under Vermont Statute, Act 250. In granting permits for subdivision of lands, the District Environmental Commission must find that the proposed project "will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas." ²

In 1978, *Sudbury, Vermont, a Pictorial Record* with text by Arthur Keefe and photos by Josie Ritter was published. This contains early photos and then-current ones with interesting comments. These by reference become part of this report, and are available in the town clerk's office. One of Sudbury's most historic resources is a road - the Crown Point Road and its branch to Ticonderoga. This road is marked in several spots but goes largely unnoticed most of the time. It served a very important role in the history of the country. Any remaining traces should be preserved. (See the History of The Town of Sudbury, Pages 6-10, herein.)

Cultural Resources are less clearly defined. These resources possess qualities of significance in Sudbury's history, architecture, archeology, and /or culture and range from sites or places to organizations and events. Where present, these resources contribute to maintaining the social fabric of the community and establishing a sense of continuity between generations of citizens. Each structure, regardless of architectural style, reflects the values and standards of the society from whence it came. In preservation, these structures stand as visual reminders of the evolutionary nature of a developing community. Organizations and events preserve a sense of the past, while bringing the community together with activities.

The Town's school and its ancillary activities is the source of much of the community's cultural resources. The Annual Road Race, which has been occurring since 1983, serves as an organizing element. The Sudbury Community Club promotes stewardship of the town's buildings and lands, and sponsors many events, such as Green Up Day, music variety shows, guest speaker presentations, and dinners and potluck suppers. Other cultural resources include the lighting of the Town's Memory Tree. The Meeting House Restoration Project is an example of their efforts to preserve one of the town's historic resources. There are also many cultural sites and events in the surrounding area in which residents participate.

² Vermont Statutes Annotated, Title 10, Section 6085.

Historic and Cultural Resources Goals and Objectives

Goal 1

- Protect, preserve and promote historic sites, structures, and artifacts important to the history and heritage of Sudbury.

Objectives

- Places of historical or educational value should be protected from development that would impair their quality or character.
- Rehabilitation of historic structures should be encouraged and adaptive uses considered where economically feasible, to maintain their architectural or cultural value to the community.

Goal 2

- Preserve and promote Sudbury's cultural heritage.

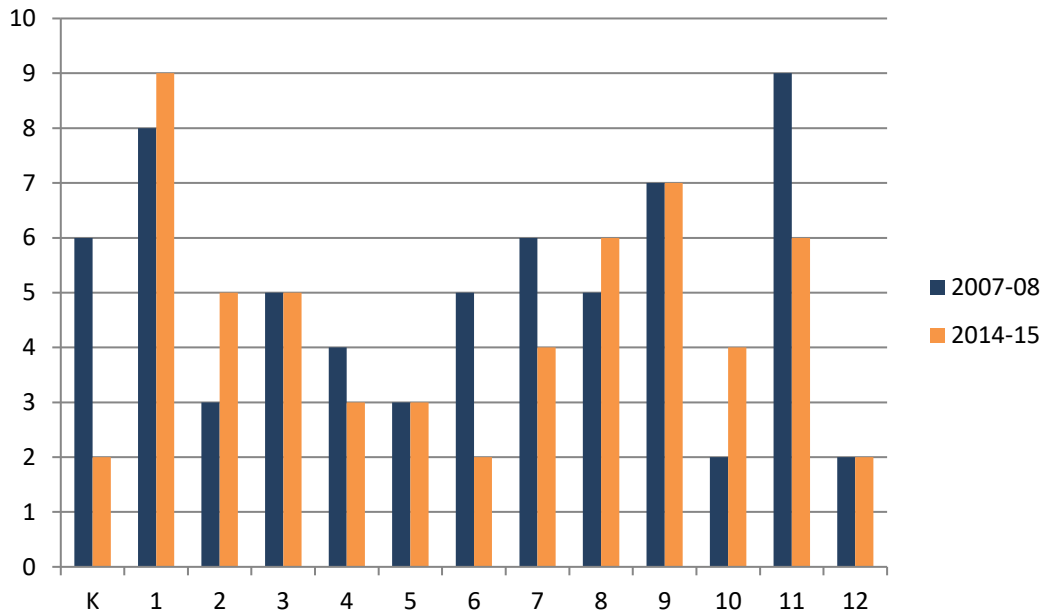
Objectives

- Work with local organizations, facilities, and businesses, to encourage activities and events of cultural interest to the residents of Sudbury and neighboring communities.

COMMUNITY FACILITIES

Present Facilities, Services, and Utilities

Public facilities and services, in or available to residents of Sudbury include elementary and high schools, fire protection, rescue, public safety, recreation, solid waste disposal, electric power, and communications.



Public Buildings

The Town of Sudbury's property holdings consist of the elementary school, the Town Clerk's office building, the first floor of the Sudbury Meeting House that serves as the Town Hall, the Town garage, the Hill School, three Town cemeteries, and two buildings that housed the former recycling center.

Sudbury's Country School, built in 1981, is an award-winning earth-bermed, solar-oriented and energy efficient building. It not only houses an extended K - 6 elementary school but is the location of many town activities after school hours. The athletic area is also available and is well utilized.

The school presently meets the needs of the town. Figure x: Enrollment Figures for the Town of Sudbury enrollment, the school is exploring joining with adjacent towns.

There are three full time teachers, part-time staff, a part-time principal, a part-time librarian and physical education, music and art teachers periodically. In addition there are aides, school counselors, special teachers and many

volunteers

Sudbury students in grades 7-12 attend Otter Valley Union High School in Brandon.

The educational needs of the adult population of Sudbury are partially met by book discussion groups, events sponsored by the Sudbury Community Club, and special programs of the Brandon Free Library. Community College of Vermont with classes in Middlebury and Rutland, classes and lectures at neighboring Castleton University in Castleton, Green Mountain College in Poultney and Middlebury College in Middlebury, offer college level educational opportunities.

The Town Clerk's office, built in 1975 near the Town Hall, is a small separate building with a fire safe vault and is the center of Town business. The Town Clerk has office hours 3 days a week and commissions and boards hold their meetings there. It houses the Town's business records, land records, and historical memorabilia.

The Town Hall is located on the first floor of the Sudbury Meeting House. A floor across the balcony was built allowing the church, which is no

longer active, to move to the second floor. The building is on the National Register of Historical Places. It is the site of town meetings, voting, community events, and is available to rent for private functions.

The Town garage is located on Williams Lane and houses the Town's road equipment. The Town Recycling Center, located across the street from the town garage stopped receiving recyclables effective July 1, 2015. Re-use of the recycling center for other town uses is under review.

The Hill School, built of stone in 1829, is on the National Register of Historical Places. Cemeteries in Sudbury are presently full so that residents have to obtain plots in cemeteries in other towns.

Although community facilities are limited in Sudbury, no new additions to school, town office or road network are planned.

Administrative Services

The provision of administrative services through a local government is basically done through two groups. A Board of three Selectmen oversees and administers the general day-to-day affairs of the Town. Under State law, the Selectmen are charged with the responsibility of overseeing the Town's roads, municipal properties and general affairs. The School Board is responsible for all matters pertaining to the education of the children residing in Town. The Sudbury School Board, consisting of three residents, administers the educational system, and the Vermont Department of Education regulates numerous aspects of the education provided to Sudbury's children. The School Board annually proposes a budget for the operation of the school system, and proposes an amount for approval in the Town's Annual Report. At the annual Town Meeting, the budgeted sum to be raised by property tax is placed on the ballot for approval or rejection by the voters.

The Selectmen, other elected positions and School Directors' positions are filled by citizens that are paid an honorarium. To date, the provision of administrative services by the Selectmen and School Board members has served the Town well, due in large part to the low population in Town and to the willingness of volunteers to serve in these positions.

Fire and Rescue

Fire protection is provided by the Whiting Volunteer Fire Department, a member of the Addison County Firefighters Association. The department was founded in 1967, and Sudbury began using its services in 1978. The southern part of the Town of Sudbury receives additional protection from the Hubbardton Volunteer Fire Department.

Whiting First Response and Brandon Area Rescue Squad provide rescue services for Town Residents. Response time from Brandon could be a problem, depending on the condition of Route 73, which is prone to flooding for a short period of time in the spring, necessitating closure of the road.

Law Enforcement

The Vermont State Police, and the local constabulary provide public safety services in Sudbury. Because of the rural nature of the Town, public safety service is generally provided on an on-call basis. As a town-wide initiative, the Sudbury Town Watch was formed to alert town residents to suspicious activity and crimes in the area.

Solid Waste and Recycling

Sudbury is a member of the Solid Waste Alliance Communities (SWAC) and manages its waste through private haulers and drop off sites throughout Rutland County. With the adoption of Vermont Act 148, the Town of Sudbury closed its recycling facility on Williams Lane. Under the provisions of Act 148, private haulers and drop

off sites are mandated to accept recyclables and since the costs of recycling will be built into the trash disposal costs, it makes little sense to duplicate this service at the municipal level. SWAC coordinates Household Hazardous waste collections in the member towns including Sudbury. Hazardous waste collection dates for these facilities are scheduled throughout the year. Hazardous waste collection is also available throughout the year during the normal operating hours of the Gleason Road Hazardous Waste Depot in Rutland.

Water Supply and Wastewater

Water supply and wastewater are managed entirely on an individual scale in Sudbury. Dug or drilled wells and on-site septic systems serve nearly all residents. Given the rural settlement pattern of the community, the town has no immediate intention to examine municipal water supply or wastewater facilities.

Communications

Communications exist in several forms in Sudbury. Traditional land-based telephone access is provided by OTT Communications and Verizon through a network of strung lines. Dial-up and DSL internet access is available from a variety of providers, and is problematic in some parts of town. Wireless telecommunication is possible in select areas throughout the community based on reception, including those served by an existing tower on Horton Road.

Improved wireless communication in Sudbury is essential to encourage economic development in town. Improved cell phone service and faster internet access will help to attract young families and support work-from-home or home-based businesses. These improvements may require the installation of more communication towers and other infrastructure. Any new facilities must be constructed in a location and

manner that are unobtrusive and consistent with the goals and objectives of this plan.

Recreation

Recreation is important to Vermont and Vermonsters. Formal recreational opportunities are limited to the athletic area at the school, that contains baseball and soccer fields, and playground equipment.

Sudbury's location and geography provide the town with unique opportunities to promote outdoor recreation. Preserves maintained by The Nature Conservancy coupled with 3 ponds and their boat ramp access plus Otter Creek with the respective boat ramp access provide varied undeveloped areas for hiking, cycling, fishing, swimming, kayaking, cross-country skiing, and other activities. Several townspeople have expressed an interest in creating a Town park in the Village District for outdoor events and social gatherings.

Other Services

Sudbury also benefits from the use of the Brandon Free Public Library, and the Rutland Area Visiting Nurse Association.

Community Facilities Goals and Objectives **Goal 1**

- Promote an environmentally sound, and energy and cost efficient system of public facilities and services to meet present and future demands.

Objectives

- Maintain facilities in good condition. Be creative in finding ways to fund projects.
- Insure that any new facilities are in character with the Town's rural character.

- Encourage maximum waste reduction, conservation and recycling

Goal 2

- Provide the desired levels of public facilities and services.

Objectives

- Continue to provide a wide variety of community services, ensuring that the construction, expansion or provision of public facilities and services are consistent with the goals and policies of this plan.
- Continue to support the volunteer fire and rescue efforts, including obtaining funding for updated equipment, vehicles, and dry hydrants.
- Maintain an updated community Rapid Response Emergency Plan and Develop a Community Emergency Management Plan.
- Adopt regulations for wireless telecommunications facilities that serve residents' needs and maintain Sudbury's character.
- Expand cemetery space as possible.
- Promote community involvement and community functions.
- Restore the Hill School for the Sudbury Historical Center. Explore grants available.

Goal 3

- Maintain a safe, secure learning environment where quality educational opportunities are provided to all students

Objectives

- Work with Supervisory Union members to ensure high-level, cost effective education for Sudbury students.

Goal 4

- Maintain and enhance outdoor recreational opportunities and public access to them.

Objectives

- Continue to provide adequate levels of recreation facilities and programs to serve the residents of the town.
- Protect and enhance recreation resources of state or regional significance.
- Support regional efforts that promote recreation and physical activity
- Study the potential for additional bicycle, hiking, and cross country skiing trails and easements.
- Promote community awareness of accessibility to waterways, trails, etc.
- Create a Town park in the Village District for outdoor events and social gatherings.

ENHANCED ENERGY PLAN

The purpose of the Sudbury Energy Plan is to conduct comprehensive energy planning at the local level while also achieving state energy goals – most importantly, the goal to have renewable energy sources meet 90% of Vermont’s energy needs by 2050. This in-depth energy planning is essential for addressing three crucial issues for the people of Sudbury: energy security, environmental protection, and economic needs and opportunities. Sudbury recognizes that as conventional fuel resources are limited, future resilience relies on lowering dependence on imported, non-renewable fuels, tapping local energy sources for enhanced self-reliance, and improving efficiency while maintaining a standard of living residents are accustomed to.

VT Energy Goals and Policies (CEP 2016):

- Obtain 90% of energy for all uses from renewable sources by 2050;
- Reduce greenhouse gas emissions to 50% below 1990 levels by 2028 and 75% by 2050;
- Rely on in-state renewable energy sources to supply 35% of energy use by 2025;
- Improve energy efficiency of 25% of homes by 2025;
- Meet the Vermont Renewable Energy Standard through renewable generation and energy transformation.

The State of Vermont has adopted a set of ambitious energy goals through its Comprehensive Energy Plan (CEP) which was updated in 2016. To help communities reach the sustainable energy future envisioned by the CEP, a central goal is to attain **90% renewable energy by 2050**.

Sudbury Energy Goals and Policies:

Reduce overall energy consumption through conservation and efficiency;

Reduce reliance on fossil fuels and imported energy sources;

Develop renewable energy resources locally.

However, to achieve this goal, development of new renewable energy sources will not be enough. Since renewable sources yield less energy per unit than fossil fuel-based counterparts, a drastic reduction in overall energy consumption is critical to meeting this target.

A critical facet of improved efficiency will be a greater reliance on electricity to power everyday needs. Since electricity can be generated from renewable resources and electric-powered technologies such as heat pumps and electric vehicles are highly efficient, switching to electricity will help lower overall energy consumption while at the same time, maintaining current lifestyles in Sudbury. According to the 2016 Vermont Comprehensive Energy Plan, **significant growth in electricity consumption is expected and will total 60% of total energy consumed by 2050**.

Sudbury Town Plan

Though this major shift in energy use is formidable, there are opportunities to lower costs and bolster the local economy through a transformation of the energy sector, which costs Sudbury more than **\$2.9 million a year** or **\$5,225 per person** each year (U.S. Energy Information Administration (EIA) estimates). Since nearly all this money flows out of the town and the state, redirecting expenditures for electricity, space and water heating and transportation to local alternative energy developers, energy businesses, and employers will keep more wealth in the area.

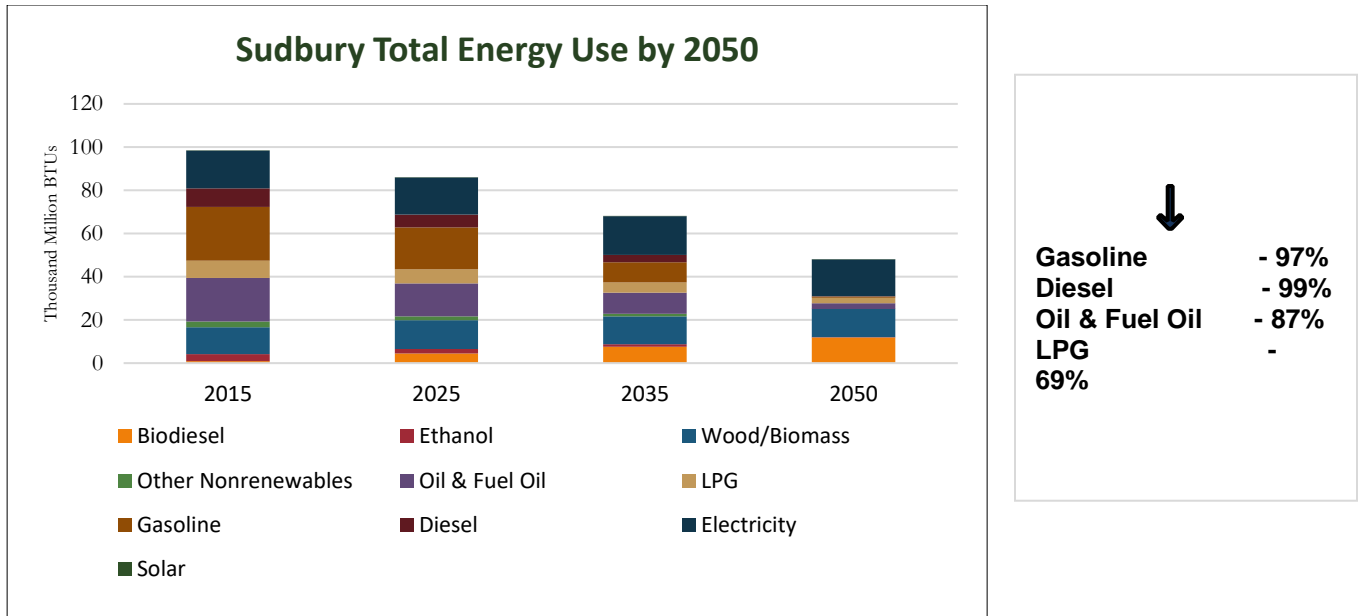


Sudbury solar project (2 MW) off Rt. 30 (courtesy Allco)

This energy plan is intended to provide the residents and local leadership of Sudbury with the information and strategies needed to maintain a vibrant community in coming decades while the energy sector is transformed to better preserve the environment, lower energy costs, promote local renewable energy development, and enhance the town's self-reliance.

Current and Future Energy Use

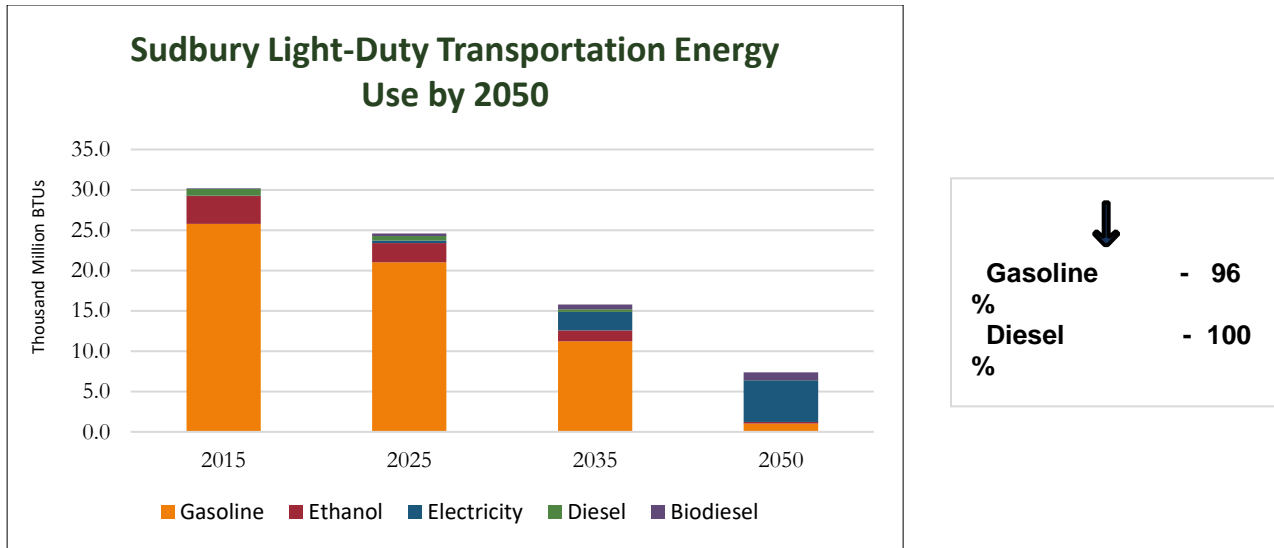
The draft Rutland Regional Energy Plan (2017) estimates current and future regional energy consumption using a computer modeling program known as LEAP (Long Range Energy Alternatives Planning System developed by the Vermont Energy Investment Corporation). Sudbury's estimates are based on these projections. The town uses nearly **98 thousand million BTUs** (British Thermal Units) per year and should aim to reduce consumption to about half that or **48 thousand million BTUs by 2050**.



Energy use can be grouped into three major sectors: transportation, thermal (heating and cooling) and electricity. Sudbury’s 232 households, four municipal structures, and two commercial entities consume significant amounts of energy for transportation and to power equipment, to heat space and water, and to power lights and appliances with electricity. Sudbury could see significant savings in energy consumption and costs by adopting conservation strategies, replacing outdated appliances and switching to more efficient technologies, and participating in weatherization programs. By looking at consumption in three categories within these sectors – light-duty transportation, residential and commercial heating, and electricity use – a clearer picture emerges about what impact the town can have on overall energy use and meeting the state’s energy goals.

Transportation Energy Use

In Sudbury, as in other municipalities in Vermont, **transportation consumes the most energy of any sector**. There are an estimated 431 light-duty vehicles in the town traveling 5 million miles a year - at a cost of \$640,000 a year and at a consumption rate of 33 thousand million BTUs. Of the 239 residents in the labor force, 221 drive to work alone and have an average commute of 30 minutes one way.



In the next few decades, total energy consumed for light-duty transportation will fall by about 75% of current levels. The efficiencies of electrification and a switch to biodiesel will account for much of this reduction. **By 2050, electric and biodiesel vehicles are estimated to comprise about 84% of the light-duty fleet in Sudbury.** It is expected that by 2050, there will be 633 electric and 25 biodiesel-powered light-duty vehicles in the town - up from 36 and 8 respectively in 2025.

Requiring more compact land use patterns is an excellent means for towns to reduce vehicle mileage and consumption of fuel and Sudbury is committed to compact land use. However, with no designated village area, no stores, no post office, no gas stations and only a cluster of homes in the center of town, substantive changes in land use patterns even by 2050 are unlikely. Sudbury also has 10-acre zoning requirement for residences outside of the village and lakes districts. Current sentiment in town is supportive of the 10-acre zoning although townspeople have an ongoing conversation about it. As it has in the past, the Sudbury Planning Commission will continue to review the 10-acre requirement and encourage development in the village district.

The Town of Sudbury is committed to reducing energy use in transportation and will lead by example when practical by purchasing electric or biodiesel vehicles, encouraging the use of public transit, and offering park-and-ride opportunities in town.

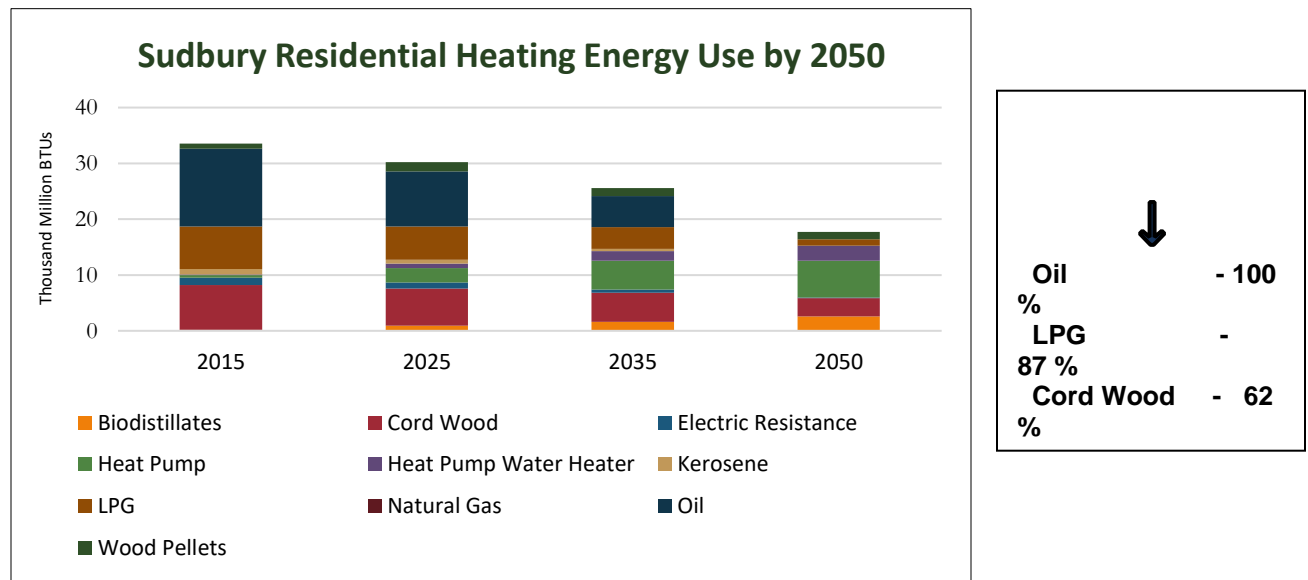
Residential and Commercial Heating Energy Use

More than 61% of Sudbury homes are heated with oil or propane for the seven-month heating season. With the projected future shortage of fossil fuels, it would behoove the town to become less reliant on these sources of heating fuel and switch to efficient heating systems powered by local resources. Converting wood-fueled systems to electric heat pumps would result in energy savings as well.

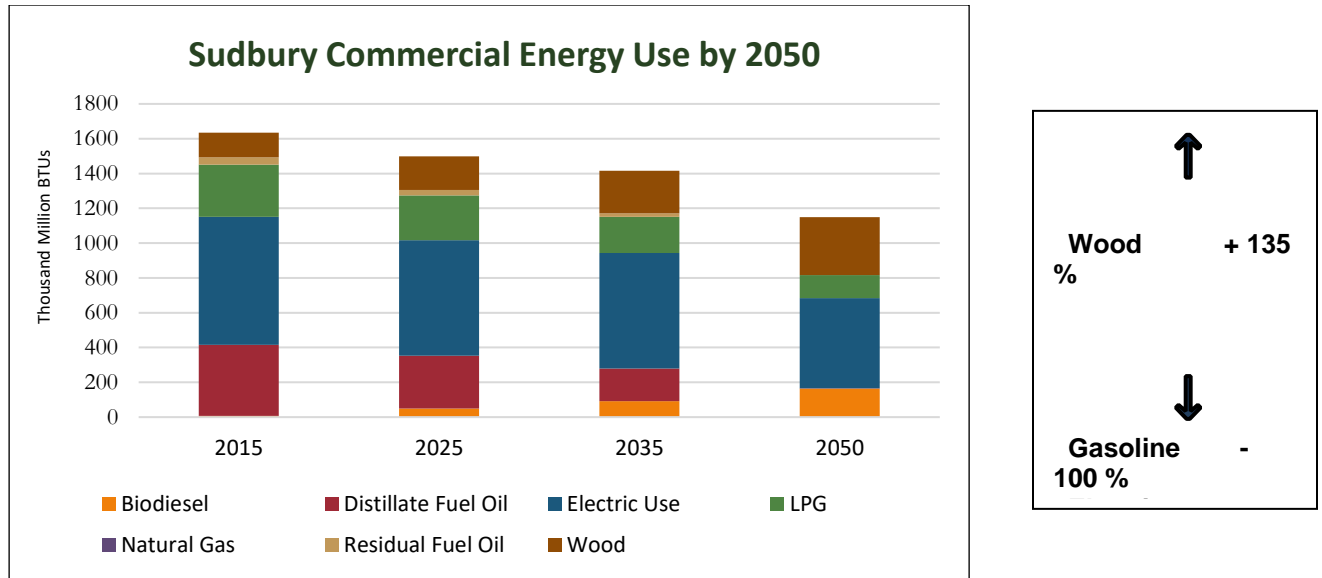
Current Sudbury Residential Heating Energy Use

Fuel	# of Households	% of Households	BTUs (in thousand million)
Natural Gas	0	0.0%	0
Propane	56	24.1%	6
Electricity	13	5.6%	1
Fuel Oil	87	37.5%	9
Coal	3	1.3%	0
Wood	64	27.6%	7
Solar	3	1.3%	0
Other	6	2.6%	1
No Fuel	0	0.0%	0
Total	232	100.0%	24

LEAP modeling shows how the town can make the transition to renewable energy sources for both residential and commercial structures through increased use of bio-distillates and electricity. The use of oil and LPG for heating drop precipitously in this modeling.



Currently there are just two commercial establishments in Sudbury using about one thousand million BTUs of thermal energy use per establishment. Future energy use is projected to decrease due to less use of fossil fuels and a heavier reliance on more efficient renewable sources such as electricity and biodiesel.



By switching fuels and relying on efficient heat pumps systems for both residential and commercial, the town’s target for new heat pumps is 24 by 2025; 62 by 2035; and 120 by 2050. The rate of conversions to new efficient wood heat systems is projected to increase wood use by 135%.

The projected growth in the percentage of heating energy use coming from renewable sources is steep: rising from 46.1% in 2025 to 93.2% in 2050.

Sudbury is committed to meeting its residential and commercial thermal targets through increased efficiency and conservation. The percentage of households that will need to be weatherized between now and 2050 to meet the state’s goals: 14% by 2025; 39% by 2035; and 85% by 2050. For commercial structures, weatherization targets are 29% by 2025; 47% by 2035; and 84% by 2050.

Electricity

Electricity is the third major sector of energy use and reducing usage and converting to renewable sources is critical to meeting the state’s energy goals. Although electricity use will increase dramatically in the future since it is a conduit for making local renewable energy sources available for use, widespread adoption of appliances, vehicles and thermal technologies powered by electricity is critical to achieving the state’s energy goals for efficiency.

Sudbury Town Plan

Sudbury KWh Usage by Year

Sector	2014	2015	2016
Commercial & Industrial	92,072	105,240	111,044
Residential	2,113,985	2,286,212	2,220,182
Total	2,206,057	2,391,452	2,331,226
Count of Residential Premises	379	378	379
Average Residential Usage	5,578	6,048	5,858

From the Efficiency Vermont data above, it's apparent that overall electrical use fluctuates in Sudbury. Other data suggest that **the town is seeing dramatic electric savings from efficiency measures** in the residential sector. For instance, from 2014 to 2016, the town's households went from saving 971 KWh a year to saving 9,120 KWh a year.

Further electricity efficiency savings are included in the LEAP modeling. The town's targets are 12.1% by 2025; 39% by 2035; and 69.8% by 2050. The targets for the use of renewable sources for this electricity are 1,585 MWh in 2025; 4,742 MWh in 2035; and 14,369 MWh in 2050.

The Town of Sudbury is committed to energy conservation and encourage residents to take advantage of Efficiency Vermont initiatives to upgrade the insulation of homes and buildings to reduce heating and cooling energy consumption and lead by example by ensuring all year-round municipal buildings are audited and upgraded.

Development and Siting of Renewable Energy Sources

As of March 2017, **Sudbury has 2.35 MW of total renewable energy generation**. The data in this table are based on information available from the Vermont Department of Public Service and the Vermont Community Energy Dashboard. The town has 11 solar sites.

Renewable Type	MW	MWh/year
Solar	2.35	2,884.19
Wind	0	0
Hydro	0	0
Biomass	0	0
Other	0	0
Total Existing Generation	2.35	2.884.19

Below is the estimated renewable energy generation potential for the town. These data are based on mapping completed by the Rutland Regional Planning Commission (RRPC) that are derived from the state's Municipal Determination Standards and associated guidance documents developed by the Vermont Department of Public Service.

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Renewable Type	MW	MWh
Rooftop Solar *	0.48	594
Ground-Mounted Solar *	353.38	433,379
Wind (small scale)	843.76	1,687,520
Hydro	0.0	0
Biomass & Methane	0.0	0
Other	0.0	0
Total Renewable Generation Potential	1,197.62	2,121,493

*As technology advances, Sudbury plans to promote the switch from primarily ground-mounted solar to primarily impervious and rooftop locations.

RRPC has suggested the following targets (in MWh) for Sudbury for total renewable energy generation to meet the state's 90x50 renewables goal. **The target of 14,369 MWh by 2050 is a fraction of Sudbury's generation potential of 2,121,493 MWh.**

2025	2035	2050
1,585	4,742	14,369

According to estimates by the RRPC, Sudbury has sufficient land to reach 2050 targets for solar and wind based on the renewable generation potential in the town. The potential for generation is maximized since the town also is encouraging a switch from primarily ground-mounted to mostly impervious and rooftop solar.

The Town of Sudbury is maximizing its potential for renewable energy generation by identifying preferred areas for solar energy generation as well as adding more potential sites on impervious surfaces such as rooftops. The town is leading by example by considering the addition of solar panels on the rooftop of its town garage.

The approach proposed by this plan would not have the effect of prohibiting any type of renewable generation technology in all locations. The town feels that, if applied regionally, this is a fair and equitable approach that applies town and state priorities and still allows for sufficient land area to meet Sudbury and the State of Vermont's energy targets and goals. Although this standard is most applicable to regional plans, the Sudbury Enhanced Energy Plan allows for the siting of all types of renewable generation technologies, but not necessarily all scales of a given technology.

Maps

Prime Resource Areas

Areas with high resource potential and no identified constraints (Known or Possible) – listed in map legends.

Secondary Resource Areas

Areas with high resource potential and no Known Constraints, but where at least one Possible Constraint exists- listed in map legends.

Wind Resource Areas (map on p. 44)

Areas where there is likely to be sufficient wind at a specified height for industrial scale wind energy development: The analysis used digital wind speed at various heights (30, 50, and 70 meters) and identified areas with the highest wind speeds at each of those heights. The mapping also considers various other conditions, such as ecological zones that may impact the feasibility of renewable energy development. These conditions are known as constraints.

Sudbury has decided not to include industrial scale wind in its renewable energy generation targets, so it is looking at areas other than the wind potential areas identified that can accommodate residential scale (less than or equal to 10kW) and commercial scale turbines or windmills (less than or equal to 100 kW). Due to anticipated technological advances, residential and commercial scale wind generation is projected to be feasible throughout most of the region at lower elevations. It is town policy that the areas identified on the Wind Resource Areas map and identified as resource areas for industrial scale wind be designated as unsuitable given their valuable natural resource values and because of other town policies that prohibit other development. Three of the areas of highest elevation – High Pond, Government Hill, and Bald Hill – all lie within the town’s conservation district, defined elsewhere in this Plan as “unconditionally protected from development” because they contain “significant natural resources ... of importance to the town.”

In addition, as detailed in the 2016 Sudbury Town Plan, a wind resource map for the State of Vermont, developed by the National Renewable Energy Laboratory (NREL) for the U.S. Department of Energy, shows that all of Sudbury is classified as “poor” or “marginal” for wind resource potential.

The wind resource map below is an inventory of potential wind resources but the locations indicated on the map do not comply with the town’s land uses as laid out in its Municipal Plan. The Town of Sudbury is not saying “no” to all wind generation. It is advocating that it would be more conducive to town land use policy for townspeople to come up with their own small scale (residential) systems (≤ 10 Kw).

Solar Resource Areas (map of p. 45)

Areas where there is likely to be sufficient solar radiation for solar energy development:

The GIS-based analysis factored in direction, slope and location of land to maps areas with high solar radiation potential. Certain areas where development was not possible – such as rivers and roads – were removed. The mapping also considers various other conditions, such as ecological zones that may impact the feasibility of renewable energy development. These conditions are known as constraints.

Sudbury is projecting to help meet its renewable energy generation target with mostly non-utility and non-Standard Offer Program scale solar (≤ 500 kW). Solar generation facilities with a capacity of less than 150 kW are highly encouraged throughout the town, especially on residential and commercial rooftops.

Because of the rapid pace of technological advances in the field of PV solar, it is expected that these solar projects will dominate the region's solar generation by 2050.

The mapping analysis showed that there are 217 acres of impervious surfaces in the town not including residential rooftops. This should be more than enough area to accommodate small scale solar and meet the region's renewable energy generation target. Using the analysis provided in the Vermont Department of Public Service Guidance (2017), the 217 acres of impervious surfaces in Sudbury can provide 27 MW of energy (217 acres / 8 acres per MW = 27 MW). If the town were to rely only on solar energy generation (one scenario), it would need just 11.72 MW to meet its municipal renewable generation goal (11.72 MW = 14,369 MWh). This does not include another 232 kW of solar energy that could be generated on residential rooftops - (232 homes/25%) X 4 kW using a methodology developed by the Bennington Regional Planning Commission.

The town also supports appropriately sited and developed solar projects of greater than 150kW in size. Visual mitigation is important to the town. To the greatest extent possible, energy facilities shall be sited so that the existing topography is used to screen the entire project from view of neighbors and passing motorists. If existing topography is insufficient to fully screen the project, then the energy facility shall be screened using a planting combination of trees, shrubs, and hedgerows. Mature vegetation shall be planted such that the energy facility will be screened from neighbors and passing motorists from day one of facility operation. If the energy facility will still be visible, despite best effort to screen it using existing topography and newly planted vegetation, then the facility shall utilize appropriate setbacks to mitigate the visual impact to neighbors and passing motorists.

Sudbury has a long-established “good neighbor” tradition. For town land use policy, that translates into taking into consideration the impact development has on people living on adjoining properties. This is a tradition the town wants to continue to use in planning for renewable energy projects as well.

Hydroelectric Resource Areas (map on p. 46)

Areas where there is likely to be capacity to accommodate hydroelectric energy development:

The mapping shows there are no areas of potential electricity generation from hydro; locations where renewable energy generation would likely be most feasible according to the natural conditions of an area. Existing, powered and existing non-powered dam sites where a generator could be installed or existing hydropower sites where equipment could be upgraded or expanded to provide additional generation (with potential production) were mapped.

The mapping also considers various other conditions, such as ecological zones that may impact the feasibility of renewable energy development. These conditions are known as constraints.

It is important to note that there is considerable time and expense involved with permitting hydropower projects, which are reviewed at the federal level.

Biomass Resource Area (map on p. 47)

Areas where there is likely to be sufficient biomass resources for biomass energy development:

The mapping shows areas of potential biomass resources; locations with high woody biomass potential and where renewable energy generation would likely be most feasible according to the natural conditions of an area.

The mapping also considers various other conditions, such as ecological zones that may impact the feasibility of renewable energy development. These conditions are identified as Known and Possible Constraints in the maps’ legends.

Unsuitable Areas (Local Constraints map on p. 48)

Areas where the Town of Sudbury prohibits renewable energy generation.

- As defined in the Sudbury Municipal plan (pp 50-1), adopted June 6, 2016, the **Sudbury Conservation District** contains lands that are unconditionally protected from development and are now considered unsuitable for renewable energy generation as well:
 - **Otter Creek Flood Plain.** This includes all lands determined by map inspection or survey to lie below the three hundred eighty (380) foot contour line of elevation on the U.S. Geological Survey map. Agricultural uses only are permitted.

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- **High Pond Reservation.** This includes all lands in the so-called Burden estate, and may be extended to include any properties in the Town whose owners request inclusion in the land controlled and/or owned by the Nature Conservancy.
- **Government Hill.** This includes lands surrounding the peak of Government or Signal Hill (BM 1089) lying above the nine hundred (900) feet of elevation contour line, U. S. Geological Survey Map.
- **Bald Hill.** This includes lands surrounding the peak of Bald Hill (BM 713) lying above the five hundred forty (540) feet of elevation contour line, U.S. Geological Survey map.

The town's Conservation District, defined elsewhere in this Plan as "unconditionally protected from development" because it contains "significant natural resources ... of importance to the town."

- Sudbury also considers the **Abelson property** that was recently conserved with the Vermont Land Trust as an unsuitable area for renewable energy development. In addition, all future legally-conserved properties in the Town of Sudbury are to be included as Unsuitable Areas.
- The Sudbury **Agricultural Protection District** (referred to locally as the Vail Estate) also is considered an Unsuitable Area for solar generation. This district is currently a single parcel on which the Vermont Land Trust has an easement. Its primary objective, as stated elsewhere in this Plan, is for the preservation of important agricultural resources with development limited to agricultural and forestry enterprises. *"Development in the Agricultural District should, to the greatest extent possible, maintain the low-intensity, active use character of the land."* (p. 51). The Agricultural Protection District is located in the northwest corner of the town and the Vermont Land Trust has an easement on the parcel.

These areas identified as unsuitable are consistent with the town's land use policies governing Nature Conservancy, Vermont Land Trust, and wetlands. The town of Sudbury does not want development in these areas and preserving those areas for species protection, wetlands protection and wildlife habitat. The unsuitable areas do not prevent the town from finding other areas of the town to generate renewable energy and meet state and municipal goals.

The three Unsuitable Areas – the Agricultural Protection District, Conservation District, and Conserved/Protected Lands – total 2,920.77 acres out of a total of 14,170 acres in Sudbury (or 20.6%).

Local Constraints (map on p. 48)

Areas where the Town of Sudbury discourages renewable energy generation.

The designated local constraints – Forest Habitat Blocks 9 & 10 and protected lands including private conserved land - are included in the state's list of Possible Constraints. Consequently, these parcels already constrain some activities and development in Sudbury.

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Since state statute (24 V.S.A § 4382) now requires municipalities to minimize forest fragmentation and to identify forest blocks and habitat connectors, using VT ANR's Vermont Conservation Design Highest Priority Forest Habitat Blocks 9 & 10 would best address this requirement.

In summary, the local constraints mapped for Sudbury are supported through data or studies; are consistent with remainder of the plan; and do not include an arbitrary prohibition or interference with the intended function of any specific renewable resource size or type.

The total acreage for the Local Constraints is 394 out of a total of 14,170 acres in Sudbury (or 3%). This acreage in addition to the 2,920.77 acres in the Unsuitable Areas totals 3,314.77 acres (or 23% of total acreage in town) and do not limit the town's ability to meet its renewable energy targets.

Preferred Areas (for commercial scale solar – 150 kW and greater) (map on p. 49)

Areas where the Town of Sudbury encourages renewable energy generation, most likely solar.

As mentioned earlier in this plan, solar generation facilities with a capacity of less than 150 kW are highly encouraged throughout Sudbury, especially on residential and commercial rooftops. Please refer to page 10 for Sudbury's community standards on solar generation.

The town also has selected the following preferred areas:

- Using town parcels that are mapped as having solar resources, the Planning Commission took a parcel-by-parcel approach to determining preferred areas for solar energy development using the following criteria: parcels that are naturally screened by vegetation or topography, are close to Phase 3 distribution lines, and would not be visible to passing motorists or neighbors in a manner that respected landowners rights, maintained the quality of life of residents, and retained the town's scenic resources.

Members of the Sudbury Planning Commission met one-on-one with individual landowners to gauge interest in siting solar generation projects likely greater than 150kW in size. The result was a list of nine mostly privately-owned parcels whose owners agreed to offer their lands for preferred areas for commercial solar development and three town-identified large structures whose owners agreed to offer their buildings for preferred areas for rooftop solar. The town garages on a parcel belonging to VTrans were also included.

For mapping purposes, the 12 parcels were consolidated into three geographical areas with solar resource potential. The table below lists the three Preferred Areas, parcel ids, total acreage, and acreage suitable for solar generation. The Preferred Areas map on page 49 shows the location of these three areas.

Preferred Area	Parcel #	Total Acreage	Acreage Suitable for Solar
1	#30-3290	10.67	92.48
1	#30-3090	9.95	
1	#30-3427	117	
1	#30-3360	10.04	
1	#30-3280	10.45	
1	#73W-233	16.4	
1	#30-3238	10	
2	#12-315	114	154.7
2	#12L-RB	44.45	
2	#12-1300	58	

Although some of the acreage would need to be reserved for screening and setbacks and there are structures, the potential for solar generation is 247.18 acres or 40,166.75 MWh of solar generation capacity (the town's 2050 target is 14,369 MWh).

- Other than these preferred parcels, roof-mounted system, former brownfield site, disturbed area such as sand or gravel pit, sealed landfill, former quarry, junkyard, parking lot, area where topographical features or vegetation naturally screen a site from common view, or areas adjacent to large scale commercial buildings are additional preferred areas for solar generation. The map on page 49 shows 217 acres in Sudbury as impervious. If these sites were used for alternative energy generation, there would be a potential of more than 27 MW/35,262.5 MWh of solar generation potential or 8.68 MW/17,360 MWh of small wind generation potential.

Existing Renewable Energy Generation (map on p. 50)

Sites where there is existing renewable energy generation in the region. This map is based on data in the Vermont Energy Action Network (VEAN) Community Energy Dashboard which reflects all renewable projects that have received Certificates of Public Good.

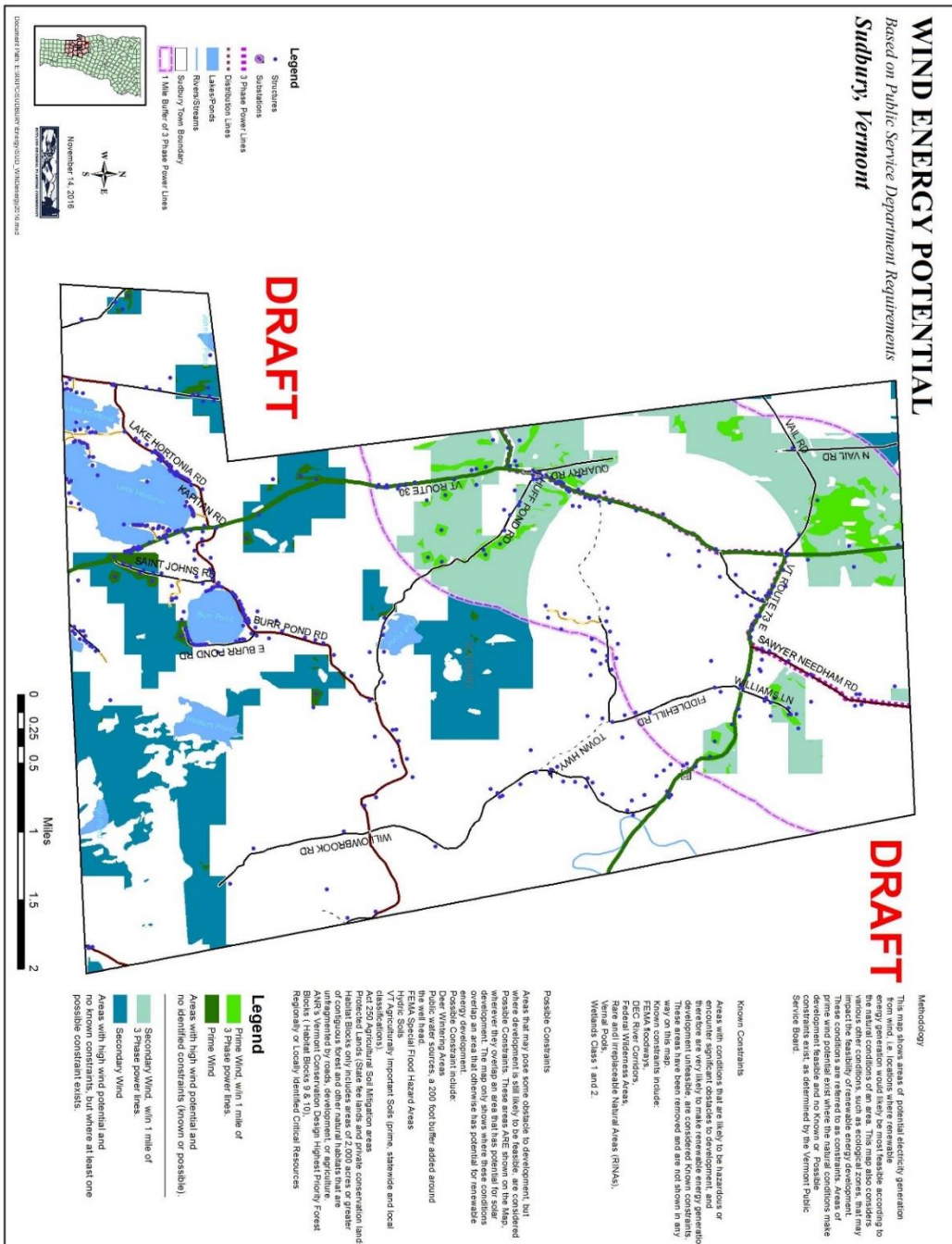
Grid Infrastructure (map on p. 50)

Another key element of the Resource Maps is the location of electric grid infrastructure, including three-phase and other high-capacity distribution lines. These are shown on each of the resource maps as well as the Existing Energy and Regional Constraints/ Preferred Areas maps. The location of transmission and distribution

infrastructure was not specifically factored into the mapping analysis or the development of energy generation goals at the regional scale. However, grid infrastructure location and capacity will play a vital role in determining the economic feasibility and timetable for development of a certain site for a renewable energy generation facility.

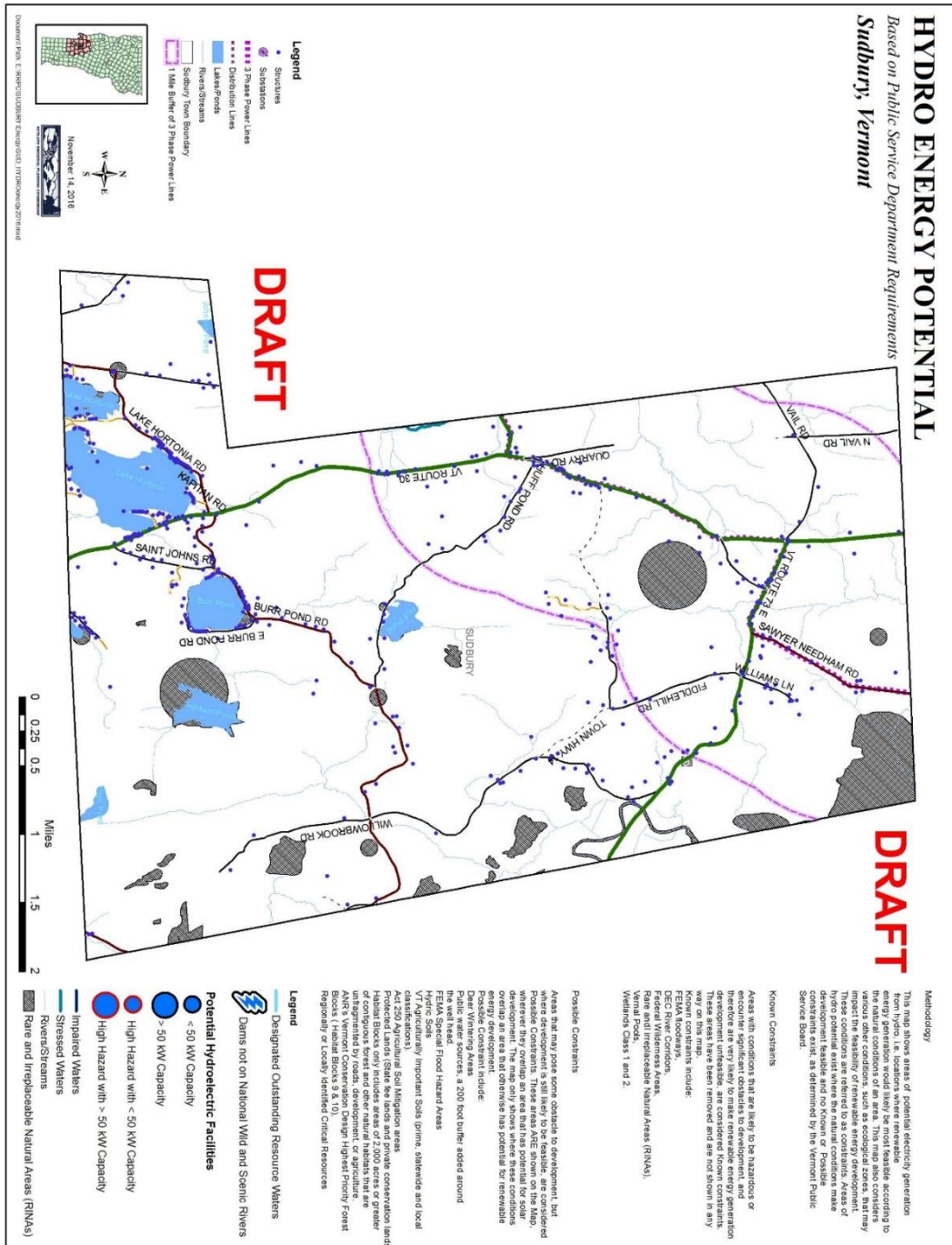
Green Mountain Power's "Solar Map" shows the current specific capacity of each section of the utility's grid in Sudbury. Red distribution lines indicate there is less than 10% capacity remaining; yellow lines show 10-20% capacity remaining; and green lines indicate more than 20% capacity remaining. As shown below, most of Sudbury has 10-20% capacity (yellow). There appears to be one small stretch of infrastructure in town that has more than 20% capacity (green). GMP infrastructure has been added to the Existing Energy map.

SUDBURY WIND ENERGY RESOURCE MAP

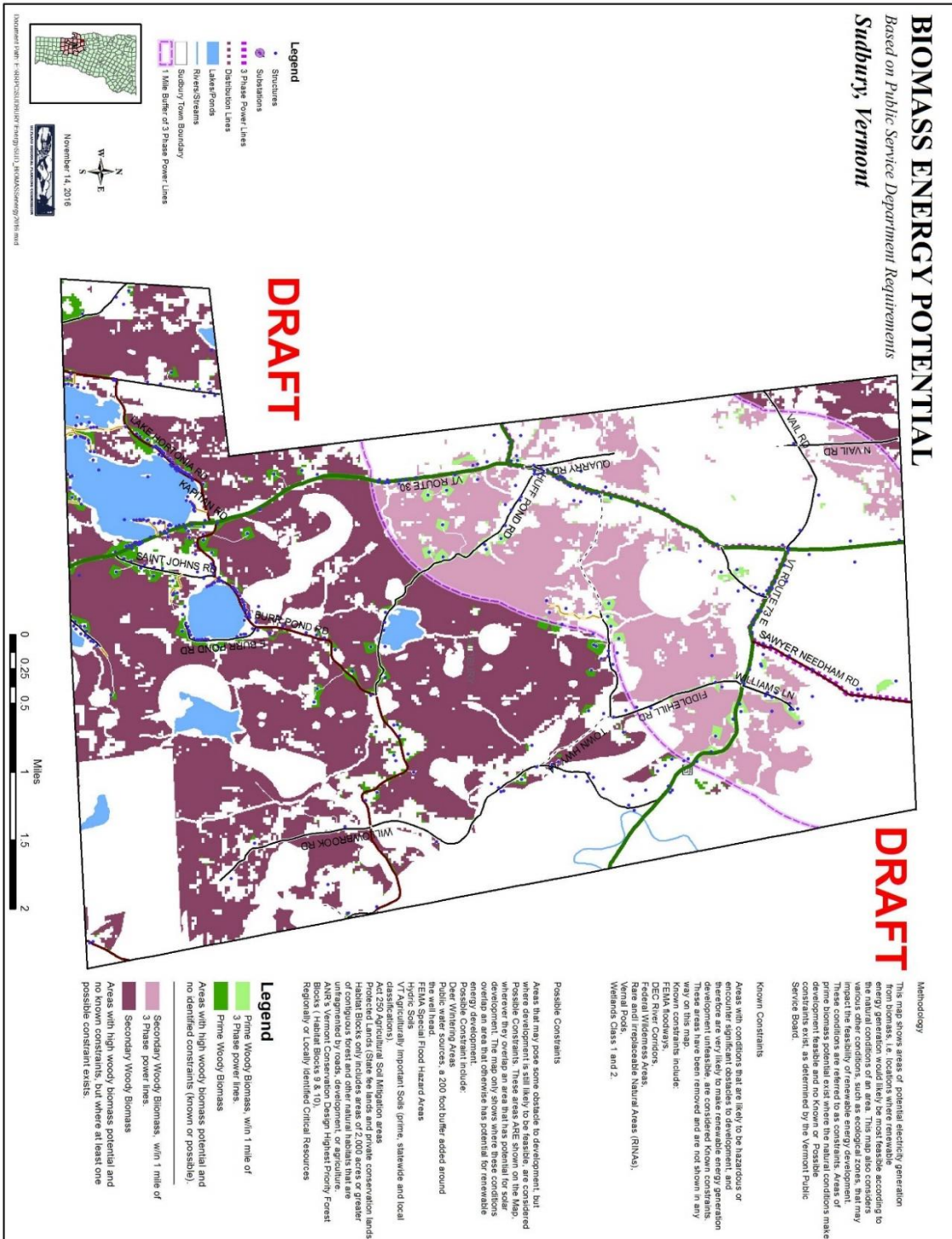




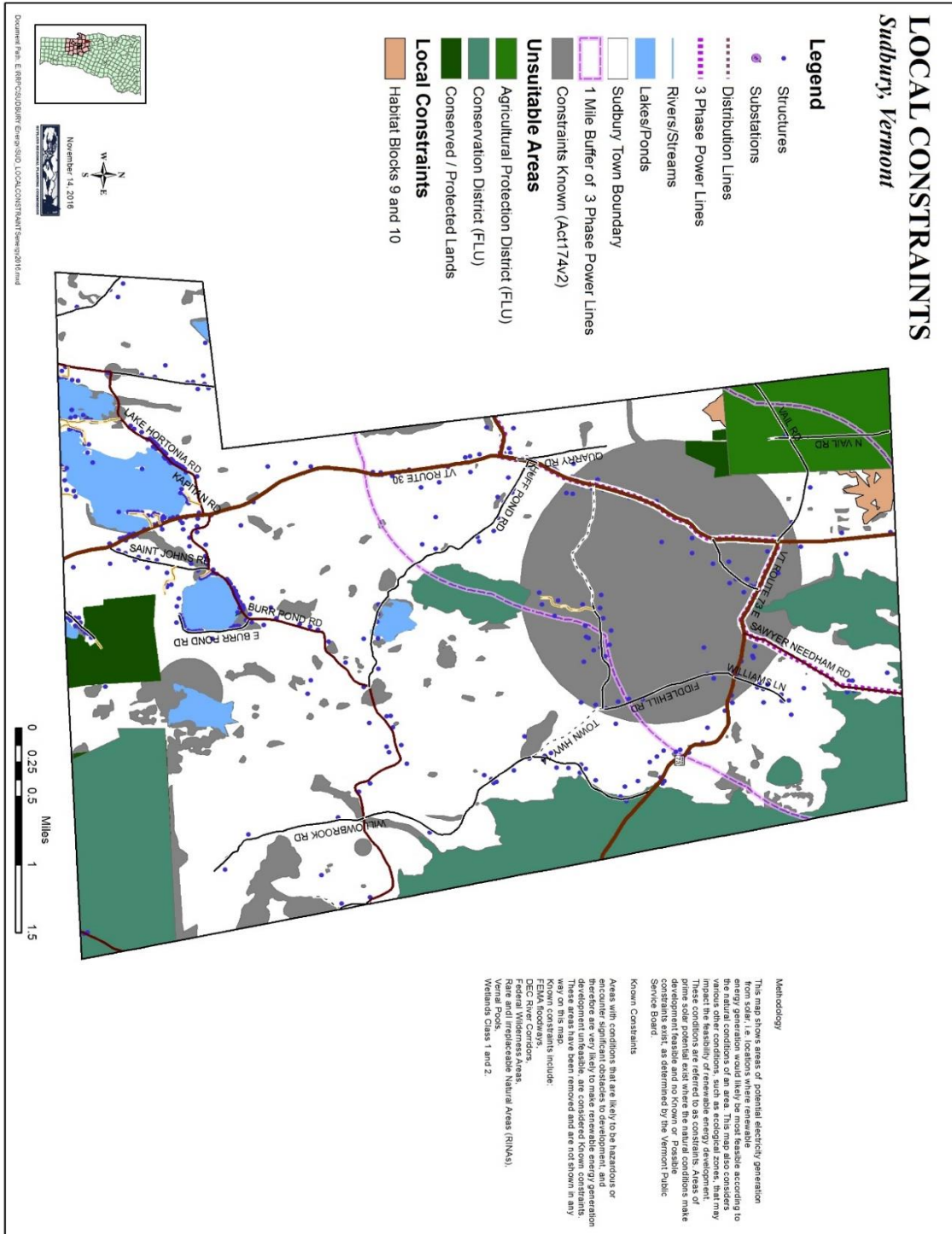
SUDBURY HYDROELECTRIC ENERGY RESOURCE MAP



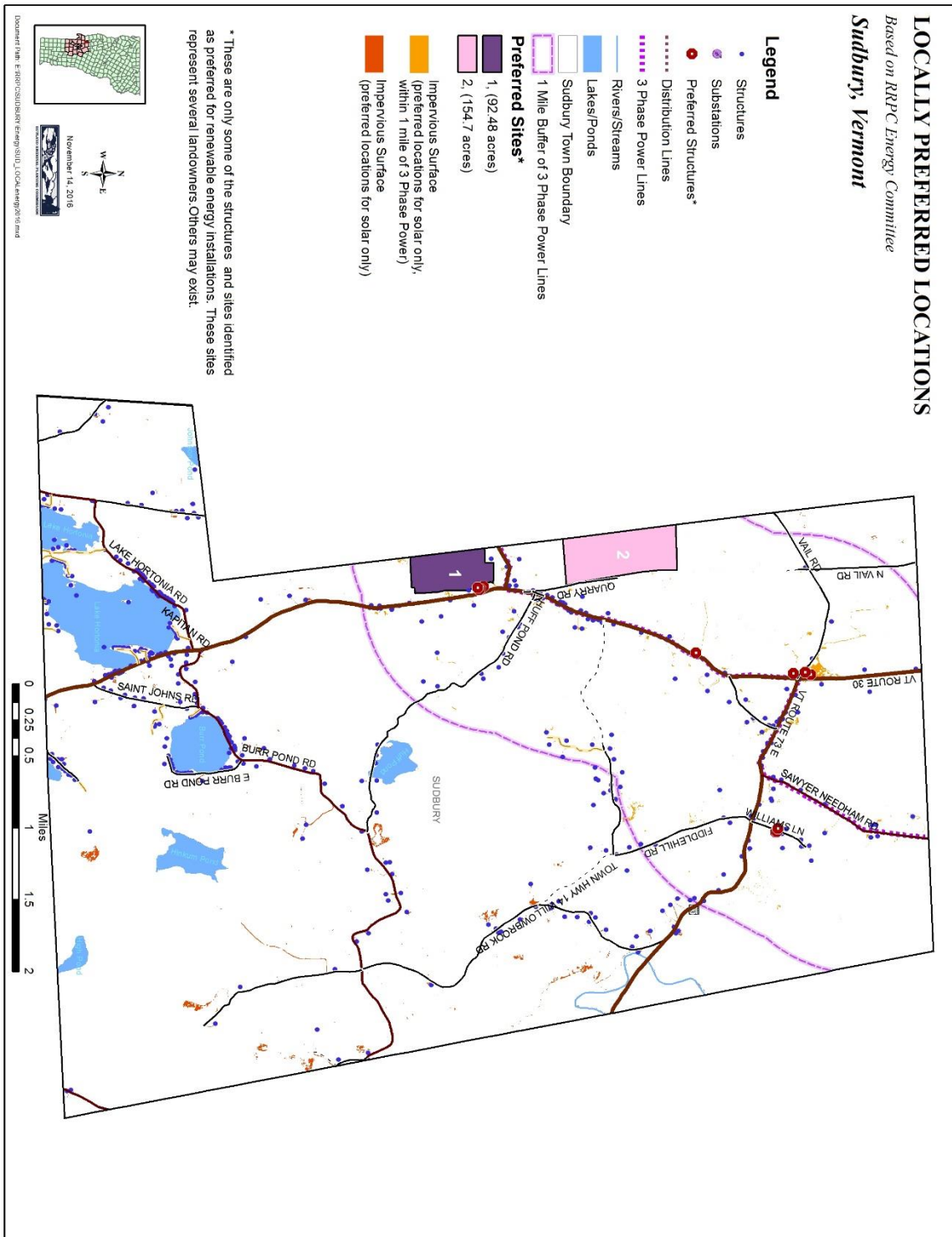
SUDBURY BIOMASS ENERGY RESOURCE MAP



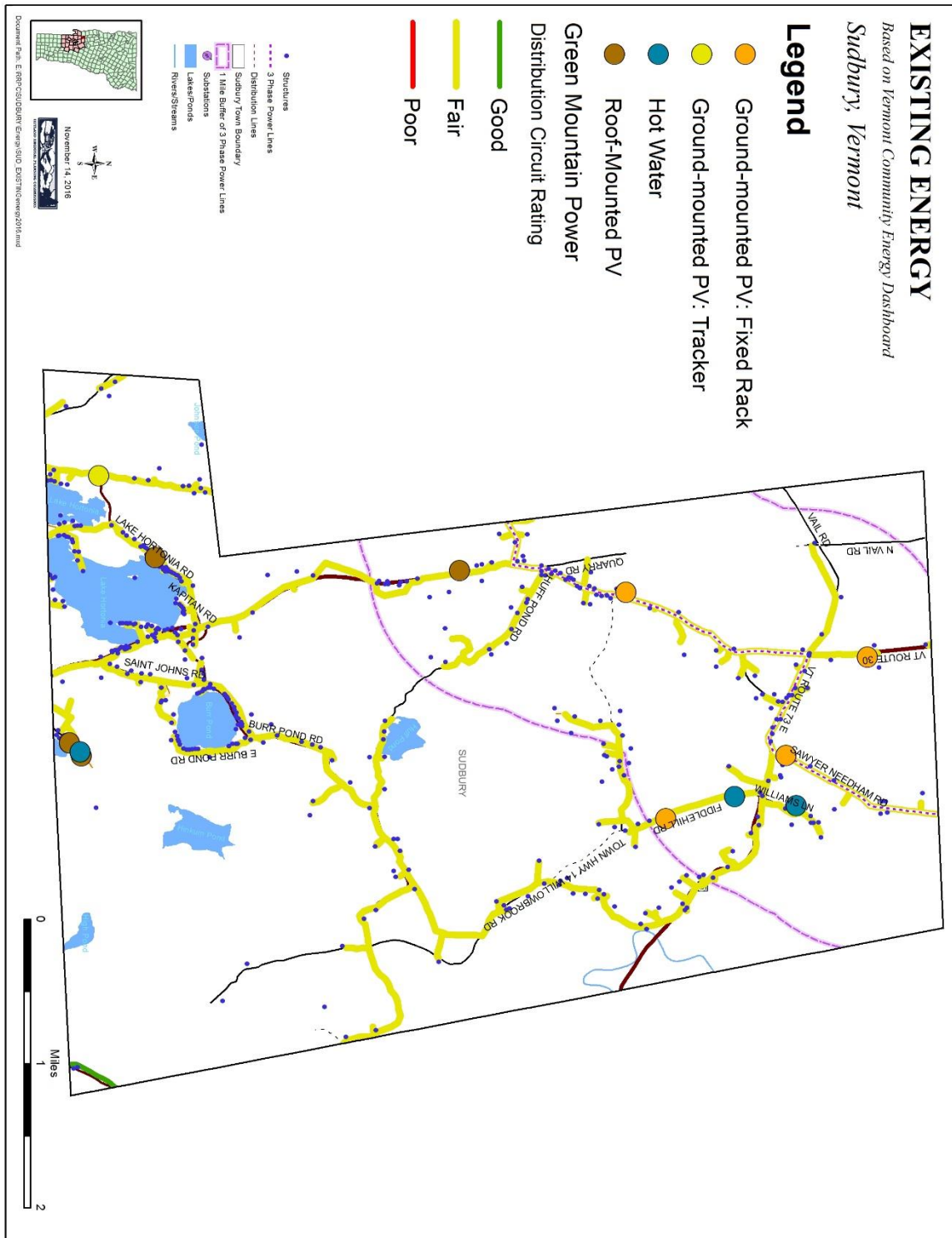
SUDBURY LOCAL CONSTRAINTS MAP



SUDBURY LOCALLY PREFERRED AREAS MAP



SUDBURY EXISTING ALTERNATIVE ENERGY AND GMP INFRASTRUCTURE MAP



Energy Strategies and Policies to Achieve Renewable Targets

The purpose of this section is to identify specific actions that have the greatest potential for Sudbury to greatly reduce fossil fuel use in a sustainable manner. Specifically, the following are policies to advance conservation and efficiency in space and water heating (thermal) and transportation and related land use changes.

Conservation and efficient use of energy

- Co-sponsor and organize weatherization workshops for homes and businesses for new construction, retrofits, and existing structures.
- Promote the town as a resource for conservation and efficiency information for townspeople by distributing related materials at the Town Clerk's office.
- Promote the use of the residential and commercial building energy standards by distributing code information to permit applicants and ensuring code compliance.
- Promote the use of landscaping for energy efficiency.
- Promote the use of cold climate heat pumps with education/presentations in coordination with Efficiency Vermont and electric utilities.
- Support the use of ground-source heat pump heating and cooling systems for new construction.
- The Renewable Energy Standard requires utilities to reduce customer fossil fuel use through "energy transformation projects" such as weatherization and incentives for heat pumps and electric vehicles. Promote and encourage utilities to deliver "energy transformation projects" - such as weatherization, particularly for municipal-owned structures.
- Encourage new residential, commercial and municipal construction to install advanced wood heating equipment.
- Encourage the development of the biomethane sector by supporting proposals for appropriately sited, cost-effective biomethane facilities and related infrastructure.
- Promote the auditing, weatherization and use of solar panels at the town garage and Town Clerk's office building. Other town buildings are used only seasonally.

Transportation

- Provide an assessment of the number of park-and-ride spaces in the community, explore opportunities to expand the number of spaces, and provide greater connectivity between public transit and park-and-ride locations.
- Promote the Go Vermont webpage, which provides ride share, vanpool, public transit, and park-and-ride options.
- Promote the Drive Electric Vermont webpage which connects users to financial incentives, dealers, and recharging stations for EVs.
- Host a "show and tell" day featuring different EVs and giving people interested in purchasing them an opportunity to talk with fellow community members who own them.
- Plan for requiring the installation of EV charging infrastructure as part of new or redevelopment, especially for developments subject to Act 250.

- Encourage local planners, road foreman, etc., to implement complete streets concepts and provide sample language to include in municipal bylaws to ensure that site plan reviews include pedestrian and bicycle access as well as safety and traffic-calming measures.
- Review state transportation projects to ensure that Complete Streets are implemented.
- Assess existing roads for their ability to accommodate safe and convenient walking and biking. Areas for improvement should be prioritized and funding sought to align these areas with Complete Streets guidelines.
- Install EV charging stations at town offices and other town infrastructure.
- Support public transit when practical and promote the use of the Town Meeting House parking lot as a public parking lot.
- Encourage the expansion of service of the Marble Valley Regional Transit District to the town.
- Create a park-and-ride parking lot at the Town Meeting House.

Land Use

- Update local bylaws to require that new development include pedestrian and bike-friendly infrastructure and connect to the existing and planned pedestrian and bike networks.
- Review and update zoning and development regulations to reflect the vision and goals of the municipal plan.
- Promote a working landscape outside of designated growth and residential areas, e.g., by working with land trusts and landowners of farm and forest tracts to conserve key parcels of land.
- Identify a compact center in the municipal plan and contact the Department of Housing and Community development for assistance in applying for state designation.
- Review zoning districts regularly to encourage more residential development in the village and lakes districts and less development in the 10-acre residential district.
- When feasible, consider applying for a village designation so that development in compact, mixed used centers is a priority.

Furthermore, the town will work to form an energy committee that will be charged with implementing this plan.

The Sudbury Planning Commission rewrote its energy plan to comply with Act 174 in order to give its residents and landowners a greater voice in the deliberations regarding the siting of future renewable energy developments in town. The offer of ‘substantial deference’ provided the hope that, unlike Sudbury’s two prior experiences with solar installations, the priorities of the townspeople and the stated goals of the Sudbury’s land use plan would be honored to the greatest extent possible. To that end, the Commission sought the approval of landowners with property and buildings in favorable solar resource locations before designating them ‘preferred sites’. Building owners with suitably oriented structures made their roof areas available for solar panels, but landowners were sensitive to the impact of large solar developments on their neighbors and passersby and agreed with the Commission that development be sited on lands with limited public view.

The Commission understands the need for and benefit of renewable energy and solar power in particular – three members have solar panels on their homes or barns – and has developed an energy plan that is fair and balanced. It meets the Vermont Renewable Energy standards and respects the concerns and wishes of the people of Sudbury.

NATURAL RESOURCES

Regional Characteristics

Sudbury's climate, plant and animal communities, and geology are influenced by its position in the southernmost section of the Champlain Valley biophysical region. This region is nicknamed the "banana belt," for its long, warm growing seasons, generally low elevations, and low precipitation compared to the rest of the state. Soils vary from glacially deposited upland till, lake and sea sands and valley floor clay from the freshwater Glacial Lake Vermont and the saltwater Champlain Sea. Deep peat soils are found in low-lying areas. While the Champlain Valley characterizes most of Sudbury, the most northern reaches of the Taconic Range enter the town in the southeast corner where Stiles Mountain, at 1213 feet, is the highest point in Sudbury. It then curves north-northwestward including Woodchuck Hill, Signal Hill, Spooner Hill, Stoney Hill, Miller Hill and ends with Bald Hill at 713 feet. Then the land sinks into Brandon Swamp at an elevation of 378 feet.

Among the hills lie many wetlands, streams and ponds, the sources of much of Sudbury's surface water. Some of these surface waters drain into the Otter Creek, while others drain into Lake Hortonia.

Soils

There are four general soil associations found in Sudbury. Each soil association has a distinctive pattern of soils, relief, and drainage. These general associations can be used to compare the suitability of large areas for general land uses. Because of their general nature, the use of these soil associations is not suitable for small scale planning such as for the management of a farm or site selection for a road.

The most prevalent soil association found in

Sudbury was formed in loamy glacial till throughout the Vermont Valley, Champlain Valley, Taconic Mountains, and associated foothills. The soils within this association (the Taconic-Macomber-Hubbardton) are found on mountains, hills and ridges overlaying slate and schist bedrock and, in Sudbury, are mostly forested. These types of soil are generally found in the southern half of town. Soils in this association vary from shallow to moderately deep, and can be found on gentle slopes as well as steep mountainsides. These soils are very well drained, and in some areas excessively well drained, which limits the site's septic suitability. The slope and depth to bedrock are also limitations for development.

The soils found running north to south along the eastern edge of Town are generally shallow to moderately deep, gently sloping and well drained. While this soil association, referred to as The Farmington-Galway soil association, was formed in glacial till similar to the Taconic-Macomber-Hubbardton soil association described above, its development capabilities are markedly different. When found on steep slopes, the geography tends to be rugged with many rock outcroppings and high limitations to development. When found in valleys however, these soils have few limitations and are well suited for forests, cultivated crops, and community development.

The soils, which form a narrow strip of land running down the eastern edge of town, were formed of water-deposited and organic material on historic terraces and lake plains. These soils are generally gently sloping and very deep. The drainage capacity of these soils, referred to as the Hinckley-Warwick-Windsor Association, is dependent on the slope at which they are found. On valley foothills with greater slope, this soil association is often excessively drained and has a poor filtering capacity, limiting onsite sewage

disposal. In shallow depressions and low areas near streams, this association is very poorly drained. These soils are generally suited to cultivated crops and to hay and pasture.

A band of soils runs diagonally across the northwestern part of town and are generally characterized as very deep and of varied slope. These soils, referred to as The Kingsbury-Vergennes Association soils, were also formed in water-deposited material and organic material on terraces and lake plains. Typically, the soils within this association have a surface layer of clay or silty clay loam and a subsoil of mottled clay. Therefore, they are moderately well to poorly drained and have a high shrink-swell potential, limiting sites for dwellings with basements. These soils can support cultivated crops, hay and pasture, as well as forests. The seasonally high water table and high erosion potential limit onsite sewage disposal.

Agriculture Capability

Agriculture is the foundation of a highly valued rural lifestyle and a significant factor in the appearance of the Vermont landscape. While there are only two traditional farms remaining in Sudbury – one dairy and one beef – numerous small diversified for profit farms have begun operating. The variety of products for sale include vegetables, meats, fresh cut flowers, and native trees and shrubs. Also, many residents keep animals – horses, cattle, sheep, goats, and pigs – and maintain pastures and hay fields.

"Prime" agricultural soils have a high agricultural potential and are considered by the Soil Conservation Service to be of national importance. Prime soils have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed according to acceptable farming methods.

A second grouping of agricultural soils are classified as "statewide agricultural soils" and have good potential for growing crops, but have one or more limitations which restrict the choice of crops. They require more intensive management than prime soils. Most farms rely on soils of varying quality to support their operations. Marginal agricultural soils can contribute to a farm's productivity when used as grazing lands and pasture, farm woodlots and sugaring.

In addition to soils, other factors influencing how well land will support agriculture are land use, parcel size, slope, and access.

The face of agriculture is rapidly changing, and farmers and communities face challenges as well as opportunities. "The last two decades have seen the emergence of creative new production, marketing and support systems that provide benefits to farmers, consumers and communities. Many of these efforts focus on developing stronger local and regional food and agriculture systems, which connect farmers more directly with consumers and food businesses." (Green & Hilchey, 2002) The evolution of agricultural techniques, trends and markets could provide opportunities for Sudbury's present and future farmers to continue the longstanding tradition of agriculture in Vermont.

Forests

Local forests provide benefits as farm woodlots, sugar bushes, recreation areas, and wildlife habitats, as well as being a resource for the forest product and fuel-wood industries.

Many soils classified as high agricultural potential also have high potential for forestry. Many of the physical and chemical characteristics that make land productive for annual crops are also desirable for tree growth.

Factors affecting the capability of land to provide forest-related values include: parcel size; contiguous acreage; attractive natural features; accessibility; and land use, the presence of unique habitats; size and distribution of forest openings; and the presence of wildlife food sources.

Forest Communities

Northern Hardwood Forest Formation is the matrix community of the Champlain Valley. This means that this community dominates the landscape and forms the background in which other smaller scale communities occur. Broad-leaved deciduous trees such as sugar maple, red maple, beech, and yellow birch characterize the Northern Hardwood Forest. Other tree species include hemlock, white ash, basswood and white pine.

The drier climate of the Champlain Valley foothills are conducive to the Oak-Pine-Northern Hardwood Forest, a forest type commonly found in small patches within Northern Hardwood Forests. Often, oaks, hickories, and pines can be found, mixed in with the species common to the Northern Hardwood Forests. The communities that make up this group are diverse in their species composition, but are held together as an ecological group because they all have species that occur in warmer climate areas, or in local situations where soil moisture is low, such as south-facing rocky ridges.

Historically, the Champlain Valley was characterized by clayplain forests. The clay soils were deposited in the Champlain Valley during and following the Pleistocene glaciation. The Kingsbury-Vergennes soils running diagonally across the northwest corner of town correspond with the majority of the remaining clayplain forest fragments in Sudbury. The largest fragment, occurring in the northwest corner of

town and extending across its western border into Orwell, has been identified by the Champlain Valley Clayplain Forests Project as being of medium-high priority for clayplain natural community conservation. Surrounding fragments have been classified as medium-low priority for conservation initiatives.

Once, clayplain forests dominated the southern Champlain Valley. What remains of this important landscape community has been altered through development and human habitation. Because the soils of the clayplain forest are deep and fertile, making them ideal for agriculture, today this forest community is extremely rare.

Clayplain forests are variously dominated by red maple, beech, hemlock, swamp, white oak, bur oak, swamp white oak, white ash, and shagbark hickory. More species of trees grow in the clayplain forest than in any other forest type in northern New England. The clayplain forest is home to a great diversity of shrubs and herbs, a number of which are rare or uncommon and some that occur in Vermont only in the clayplain forest. Many animals spend all or part of their annual cycles on the clayplain and diminishing forest size is leading to fragmentation and elimination of these habitats.

Mineral Resources

The extraction and processing of mineral resources is also a significant economic activity in Vermont and Rutland County.

Sand and gravel resources are scattered throughout Sudbury. One of the larger areas of sand and gravel deposits occurs along either side of Rt. 30 just south of the junction with highway 73 W. Many of these resources occur in close proximity to mapped wetlands, decreasing the likelihood that they can be extracted and used.

Conflicts concerning the impact of trucks, crushing operations, and other nuisances are more likely when a significant gravel deposit is surrounded by residential uses. When sand and gravel operations extract material within a few feet of the water table, concerns are raised about the potential impact of fuel spills, compaction, and degradation of groundwater aquifers.

Wildlife Habitat

The wetlands, open agricultural fields and forested areas of Sudbury offer many diverse habitats for wildlife.

Many of the wildlife habitats and other natural and fragile areas are mapped by the state and include deer wintering areas, bear habitat, migratory staging areas for waterfowl, fisheries, and sites of rare plants and animals. A number of these features are depicted on Sudbury's Natural Resource Maps. Other types of wildlife habitat include large forested tracts capable of supporting larger mammals and "wildlife corridors" such as streams that help connect the habitat areas together.

Wildlife associated with the Champlain Valley bioregion includes migratory waterfowl such as snow geese, Canada geese, and a variety of ducks. Marsh and water birds common to this region include the common mallard and black duck, the American bittern, least bittern, sedge wren, and Virginia rail. Open upland fields provide habitat for barn owls and upland sandpipers. Within the forests, songbirds, wild turkey, white-tailed deer, gray squirrel, and small rodents can be found. Three rare reptiles, the eastern timber rattlesnake, the five-lined skink, and the spiny softshell turtle all reside in the Champlain Valley. The eastern timber rattlesnake's Vermont habitat range only includes West Haven, as of 2015, and the spiny softshell turtle is not found in Sudbury at all. However, it is possible that the five lined skink

can be found in Sudbury. Sudbury is home to four bat species that are listed as either rare or endangered: the little brown, the northern long-eared, the tri-colored, and the eastern small footed.

The Nongame and Natural Heritage Program of the Vermont Department of Fish and Wildlife conducted a comprehensive assessment of rare and endangered species and habitats in western Rutland County in 1991. This effort resulted in identifying areas in Sudbury deemed to be of State and local significance for the existence of rare communities, plants or animals. Only one of these sites is within an area protected through conservation, located on land owned by the Nature Conservancy and others are in the floodplain and in the vicinity of Lake Hortonia and Burr Pond.

Vermont is near the northern limit of white-tailed deer range in North America, and adequate food and shelter must be available if deer are to survive the deep snows and cold temperatures. Within Sudbury, eight deer wintering areas have been identified.

Water Resources

Watersheds

A watershed is a distinct, topographically defined land area that drains into a single river, river system, or standing body of water. Because smaller tributaries join to become larger rivers, many watersheds may be considered "subwatersheds" of larger watersheds. As one would expect, the activities taking place in a watershed play a critical role in the quality of the water draining from it.

The southern portion of Sudbury is within the Poultney River Watershed. The northern and eastern parts of the town drain into the Otter Creek basin.

Surface Waters

The benefits provided by rivers and streams and their corridors are quite diverse. Historically, rivers and streams have served as important power sources and routes of transportation. Other values commonly associated with rivers and streams and their corridors include recreation and wildlife habitat.

Otter Creek, the largest flowing body of water in Vermont, flows into Sudbury from the east and, after a few ox bows, exits back into the Brandon Swamp. The Lemon Fair River briefly flows along Sudbury's western boundary. Willow Brook, which flows from High Pond, and Pleasant Brook, flowing from sources near Fiddle Hill Road into swampland, are found completely within Sudbury.

Lakes and ponds are also a significant feature of Sudbury's landscape. High Pond, Echo Lake, Hinkum Pond, Burr Pond and Huff Pond are all within Sudbury's boundaries, as is the northern end of Lake Hortonia, the largest body of water in Sudbury.

Lake Hortonia and Burr Pond are extensively developed with a mix of summer and year-round camps and houses. High Pond is located on land restricted from development and is a pristine mountain pond. Huff Pond has houses only along the road on its south shore.

Two surface waters within Sudbury - Burr Pond and Hinkum Pond have been identified by the state as outstanding examples of Mesotrophic-Eutrophic lakes. These lakes are moderate in depth and support extensive plant communities of substantial diversity and abundance. Shallow coves and wetland edges support communities with mixtures of floating-leaved, submersed and emergent species, while more exposed shoreline areas can support predominantly submersed species. Because of Burr Pond and Hinkum

Pond's ability to support representative populations of macrophytes and fish associated with Mesotrophic-Eutrophic lakes, they have been given high conservation priority by the State of Vermont.

Burr Pond and its adjacent large wetland support three rare or threatened macrophytes—the pondweed *Potamogeton friesii*, the coontail *Ceratophyllum echinatum*, and the aquatic buttercup *Ranunculus longirostris*.

While many of Sudbury's waters support important plant and animal communities, the health of these communities are threatened by the non-native invasive Eurasian Watermilfoil. Once Eurasian Watermilfoil is introduced into a water body, it spreads quickly altering the natural environment of the lake. The effects of this can range from the reduction of available spawning areas for fish, to dominating indigenous plant species. Growth of watermilfoil can also negatively impact recreational uses of the lakes. Both Burr Pond and Lake Hortonia cannot support all designated uses because of this nuisance species. An aquatic ecosystem restoration project has been implemented for Lake Hortonia and Burr Pond to address the watermilfoil issue.

All surface waters in Vermont are categorized for management purposes (Class A or B), and the degree to which a body of water actually meets the objectives established by its classification is evaluated on an ongoing basis by the Agency of Natural Resources. A proposal to reclassify Hinkum Pond and High Pond as Class B1 surface waters because of their pristine nature is presently being proposed as part of the Agency of Natural Resources' basin planning process.

Wetlands

Wetlands are land areas that are saturated with

water at least part of the year. Although precise definitions vary, wetlands are normally identifiable by vegetation, soil type, and/or frequency of ponding. Wetlands include marshes, swamps, sloughs, fens, mud flats, and bogs. In addition to providing important wildlife habitat, values (or functions) of wetlands include storing stormwater, purifying surface and groundwater supplies, recharging aquifers, controlling erosion, providing areas for recreation, and serving as education and research areas. Wetlands play critical roles in the reproductive cycle of many threatened species. Wetlands support plants that can help purify water by taking up nutrients and incorporating them into plant materials while releasing oxygen.

Almost all of the identified rare and endangered species locations in Sudbury are located in mapped wetlands or surface waters. Wetlands occur almost continuously along the eastern border of the Town. Other large wetland areas occur in the northern section of town. Small sites are scattered throughout the town, generally associated with river and stream corridors and areas around the lakes. Please refer to Sudbury's Natural Resource Maps for specific locations.

Like other water resources, wetlands have been classified for management purposes by the state of Vermont. Currently, all wetlands within Sudbury are classified as Class Two wetlands. The Vermont Wetland Rules of 1990 established three classes of wetlands. Class one and class two wetlands are "significant" to the state and are protected by the state's rules.

According to the Vermont Wetland Rules, Class One wetlands are wetlands considered to be "exceptional or irreplaceable in their contributions to Vermont's natural heritage." The majority of wetlands mapped by the National Wetlands Inventory are designated by the State of Vermont as Class Two wetlands. When Class

Two wetlands are located near development, they must be protected by a buffer zone of 50 feet rather than the 100 feet setbacks associated with Class One wetlands.

State wetland rules control development in wetlands rather than prohibit it outright. Farming and forestry uses, "soft" recreation, utility poles, and incidental residential uses are allowed as long as the outlet of the wetland or its pattern of flow is not altered, and dredge and fill restrictions are met. Federal law also governs the use of wetlands. Federal regulations are different from state regulations and are primarily implemented through the federal Clean Water Act. The Clean Water Act regulates dredging and filling of all public waters, which include the nation's wetlands.

The majority of threats to wetlands come from development--be it agricultural, residential, commercial, or transportation related.

The 2002 Farm Bill's Wetlands Reserve Program is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection.

Groundwater

The main reasons for planning for groundwater are to protect the health of area residents and insure adequate supplies of water for the future. Without clean groundwater supplies, the

community could incur significant costs in terms of health and/or in locating alternative supplies.

To understand and plan for groundwater, it is helpful to recognize that groundwater is a part of the hydrologic cycle (which involves the continual movement of water between the earth and the atmosphere). Groundwater is water that has infiltrated into the soil and filled the pores and spaces in sand, gravel, or rock. The areas where groundwater is stored are referred to as aquifers. An aquifer is a geologic formation containing enough water to yield significant quantities to wells and springs. Places where groundwater is replenished by surface waters are known as recharge areas. Water moves from the recharge areas through the aquifer and out by way of discharge areas such as streams. Groundwater is drawn from aquifers through wells. Areas surrounding wells are areas of influence. In some situations (such as when a well from an aquifer serves a public water supply), the entire area surrounding an aquifer and having an influence on the quality of water in it is known as a wellhead protection area.

In general, there are two kinds of aquifers, unconsolidated and consolidated. Unconsolidated aquifers are mainly composed of materials such as sand and gravel. The coarse texture of these deposits typically allows for storage of large volumes of groundwater. Consolidated aquifers, also known as bedrock aquifers, are composed of fractured rock. These aquifers differ from unconsolidated aquifers because there are no spaces between individual grains of rock materials to store and transmit water. Instead, water is stored and transmitted in the fractures, joints, or faults in the rock.

Scenic Resources

In the course of planning for Sudbury's future, it is important that the presence of high quality open space and scenic resources such as vistas

and landmarks, are recognized and the integrity of such resources is preserved. (See the Historical and Cultural Resources and Transportation chapters for examples of Sudbury's scenic resources.) Scenic resources have aesthetic, historical and economic value. Siting of future construction, including community facilities, energy generating facilities and infrastructure, should always consider the potential impact on the aesthetic qualities of the community and preserve the undisturbed integrity, wherever possible, of Sudbury's scenic and open space resources.

Scenic resources enhance the quality of life of Sudbury's residents, but these resources are fragile. Use of these areas must be balanced with their protection and preservation so that misuse and overuse do not destroy the delicate balance of form and pattern that defines scenic beauty.

Protecting Sudbury's Natural Resources

As can be seen in the descriptions above, Sudbury is endowed with a multitude of important ecosystems, containing a variety of significant habitats important to flora and fauna, as well as natural resources important to the economy of the town in the form of timber, mineral deposits and prime agricultural soils. The health of these resources is directly linked to the overall evolution of the Town of Sudbury. Protection can come in the form of conservation and preservation of specific parcels of land, town-wide goals and policies directing the intensity and type of land uses, and state and federal regulations directing activities that affect these resources.

Private entities have conserved two important areas within Sudbury. The Vermont Land Trust holds a conservation easement on land in the northwest corner of town. The conservation of this land is significant because it encompasses much of a large, high-priority, parcel of clayplain

forest.

The Nature Conservancy, with its mission to “protect animals, plants and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive,” holds ownership of a land within the southeast corner of Sudbury. This land contains small areas of prime agricultural soils, as well as wetlands and sand and gravel resources, and surface waters. One site identified as rare or endangered by the Nongame and Natural Heritage Program of the Vermont Department of Fish and Wildlife is also within this conserved area.

While conservation is occurring in Sudbury, many areas containing rare and endangered flora and fauna, and the habitats that provide for their existence remain unprotected. Burr Pond and Hinkum Pond have been given high conservation priority by the State of Vermont but are not currently conserved. Please refer to the Natural Resources Map accompanying the plan for the location of these sites.

State wetland rules protect all of Sudbury’s wetlands through regulations requiring a 50-foot buffer zone between edges and development. Additional guidance for development occurring near wetlands that provide habitat for rare, threatened and significant plant and animal species may be needed to ensure the healthy functioning of the wetland ecosystem as well as the protection of these specific species.

Natural Resources Goals and Objectives

Goal 1 - Agriculture Capability

Encourage sustainable agriculture and forestry land and practices in the community

Objective

- Encourage landowners to develop their property in a manner that retains the greatest possible amount of prime agricultural land for traditional uses.
- Suggest that interested landowners work with the Vermont Land Trust to preserve open land.
- Suggest that interested landowners work with the Champlain Valley Clayplain Forest Project to preserve or restore clayplain forests.
- Encourage interested farmers to coordinate the rental of fields for agricultural purposes

Goal 2

Maintain agriculture and forestry as viable industries in Sudbury

Objectives

- Inform and encourage interested individuals in applying for grants to assist agriculture and forestry.
- Promote new agricultural techniques, such as diversifying to respond to the changing agricultural and economic climate of the state.

Goal 3 - Mineral Resources

Help balance the continuation of natural landscapes with the economics of mineral extraction.

Objective

- Current and future mineral extraction should be done in such a manner so as to limit negative impacts, where possible.

Goal 4- Wildlife Habitat

Encourage areas with rare, threatened, and endangered species and other critical wildlife habitat to be protected to the greatest extent possible.

Objectives

- Maintain and improve wildlife habitat and natural areas in the town and region to the fullest extent possible.
- Discourage the fragmentation of forest parcels in order to protect forest species diversity and wildlife population sizes.

Goal 5 - Water Resources

Maintain or improve surface water quality to protect drinking water, aquatic habitat, and recreation.

Objective

- Encourage pollution abatement in the town's rivers, streams, and ponds.
- Construction should be discouraged where slopes exceed 15 percent, as defined by the UDO.
- Logging practices should follow Acceptable Management Practices (AMP) developed by the Vermont Agency of Natural Resources
- Agricultural activities should follow Required Agricultural Practices (RAPs) for agriculture.
- Discourage development in areas that are vulnerable to run-off or erosion.
- Continue to support the road crew in employing gravel road maintenance techniques that prevent soil erosion and road surface deterioration.

Goal 6 – Wetlands

Identify and protect all wetlands which provide significant functions and values in such a manner as to achieve no net loss of such wetlands and their functions.

Objective

- Significant wetlands and other critical natural communities should be protected from development by encouraging the maintenance of an undisturbed buffer strip of naturally vegetated upland at least 50 feet in width around the edge and by preventing runoff and direct discharge into wetlands.

Goal 7 —Ground Water

Maintain and enhance the quality of ground water resources and their resource protection areas from adverse development.

Objective

- Ensure compliance with current standards and State Law of on-site sewage disposal system installations .
- Land use activities which potentially threaten ground water quality should be carefully studied to prevent undue loss of groundwater quality.

Goal 8 —Conservation

Recognize the aesthetic, historical, and economic value of conserved and locally significant natural areas within Sudbury

Objective

- Pursue mitigation and/or alternative sites for development that could negatively impact sensitive natural resources and conserved lands.

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FLOOD RESILIENCE

Flood events are Vermont's most frequent and costly type of natural disaster. There are two types of flooding that impact communities in Vermont: inundation and flash flooding. Inundation is when water rises onto low lying land. Flash flooding is a sudden, violent flood which often entails fluvial erosion (stream bank erosion). The combination of flash flooding and fluvial erosion cause the most flood-related damage in the state. The state incurred costs of more than \$850 million from Tropical Storm Irene in August of 2011. Prior to and since Irene, Vermont has experienced more frequent and severe flooding and will likely continue to in the future.¹

Mapping Flood Hazard Areas

To meet the new state requirement of identifying flood hazard and fluvial erosion areas and designating areas to be protected, maps are an essential aid. Because the methods of mapping inundation and fluvial erosion corridors differ significantly, river corridor maps are a critical addition to existing flood hazard maps. The National Flood Insurance Program (NFIP) was created by the Federal Emergency Management Agency to address inundation hazards. Flood insurance rates are based on Flood Insurance Rate Maps (FIRMs) or Digital Flood Insurance Rate Maps (DFIRMs) which delineate areas of the floodplain likely to be inundated during a flood. These are identified as a Special Flood Hazard Area (SFHA) or with a 1% annual chance of flooding. Town participation in NFIP is voluntary. In Vermont, two thirds of flood damages occur outside of federally mapped flood areas.

Sudbury has 9 structures in the Special Flood Hazard

Area (SFHA). Just 1 of those structures located in the SFHA is insured for flooding.²

Vermont's River Corridor and Floodplain Management Program, developed by the Vermont Agency of Natural Resources (ANR), delineates areas subject to fluvial erosion. River corridor maps are designed with the recognition that rivers are not static. Development in the river corridor and stream channel engineering over time have increased channel instability. While these management practices may create the illusion of stability, these engineered channels when tested by a high flow cannot be maintained. Special mapping and geomorphic assessments can identify fluvial erosion hazard areas along rivers.

Phase 1 Geomorphic Assessment (SGA) has been done for the Lower Otter Creek which runs through Sudbury. Such studies and plans are vital in determining river and stream alterations, which affect water flows and could potentially lead to future flood damage. The SGAs and River Corridor Plans suggest potential remediation actions that can be taken to reduce the risk of future flood damage including, planting stream buffers, stabilizing stream banks, removing berms, removing structures and restoring incision areas. Unmapped River Corridors/Fluvial Erosion Hazard (FEH) Areas of Sudbury should be included in this Town Plan as they become available.

History of Flooding

A number of significant flooding events have occurred in Sudbury, as indicated in the flood history table below.

¹ Vermont Division of Emergency Management and Homeland Security

² Flood Ready Vermont

Spring of 2013: Willowbrook Road and Burr Pond Road Flooded as a result of heavy rains. There were \$15,209 in damages.

August 28, 2011: Tropical Storm Irene produced 5 to 7 inches of rainfall and caused \$58,000 in town road damages.

June 28-30, 1973: Flooding from heavy rainfall caused \$64 million in damages statewide.

March 11-21, 1936: Intense rain and snowmelt caused flooding and \$1 million in damages across the state.

November 3, 1927: Heavy rain from the remnants of a tropical storm caused \$35 million in damages across the state.

Flood Hazard Area Regulations

Sudbury adopted a flood hazard overlay district as part of its Unified Development Ordinance in November of 2008. These regulations comply with state law and allow the town to meet the requirements of the NFIP. River Corridors have not been incorporated into the town's flood hazard regulations. Sudbury's flood hazard regulations could exacerbate flooding and fluvial erosion by allowing new development and fill in Special Flood Hazard Areas.

The current flood hazard regulations, since they do not include river corridor protection, do not qualify the Town for favorable (17.5%) state reimbursement rates after disasters as established in the Emergency Relief and Assistance Fund (ERAF) rule.

Local Hazard Mitigation Plan and Local Emergency Operations Plan

The Sudbury Local Hazard Mitigation Plan (LHMP) was adopted in 2004 as an Annex to the Rutland Region All-Hazards Mitigation Plan, however the plan has since expired. Since January of 2014 the Town has been working to update the LHMP to a single jurisdictional plan, and the LHMP is currently under FEMA review. Sudbury maintains an up-to-

date Local Emergency Operations Plan (LEOP),

which was last adopted on April 17, 2015. The LEOP encourages flood preparedness and identifies a process for response planning, and must be updated annually by May 1.

NFIP Participation

The town's Flood Insurance Rate Map and Flood Insurance Study were first published in August of 2008, at the same time that the Rutland County DFIRM became effective. Sudbury joined the National Flood Insurance Program in September of 2010.

Lands that Minimize Flooding

There are natural features which protect against flood damage. These should be protected at all costs. Riparian buffers, for example, reduce flood hazards and stabilize stream banks, attenuate floods, provide aquatic and terrestrial habitat and wildlife corridors, filter runoff, absorb nutrients and pollutants, and shade streams to keep them cool. Wetlands, by acting as a natural "sponge," also prevent flood damage and are a vital component for maintaining the ecological integrity of land and water. In addition, upland forests also moderate flood impacts and attenuate flood impacts by mitigating the effect of steep slopes and gravity, which amplifying water velocity in rivers and streams. Watershed and River Corridor assessments

aid communities in making knowledgeable and strategic decisions about how to best protect, manage, and restore natural watershed resources.

Flood Resilience Goals and Objectives

Goal 1

- Use sound planning practices to address flood risks to protect the citizens, property, and economy of Sudbury, as well as the quality of the Town's natural resources.

Objectives

- Adopt River Corridor Protection Language in to the Flood Hazard Regulations of the Unified Development Ordinance
- Update the Unified Development Ordinance with setback and buffer requirements that protect both structures and rivers.

Goal 2

- Take steps to prepare the town to be able to recover from flooding quickly and in a manner that improves flood resilience for the future.

Objective

- Work towards the implementation of mitigation actions outlined in the Local Hazard Mitigation Plan
- Adopt the Local Emergency Operations Plan every spring.
- Acknowledge and assist actions that would restore natural river functions.

Goal 3

- Development in Town should occur in a manner that does not worsen flooding risks.

Objective

- Discourage New Fill, Construction And Infrastructure In Special Flood Hazard And Fluvial Erosion Areas
- Explore The Removal Or Renovation Of Structures In Flood Areas

TRANSPORTATION

Facilities

Transportation facilities provide for the movement of people and goods within the community and provide access to homes, businesses, schools, government offices, and places beyond the municipality. Decisions regarding transportation have a direct impact on land investment and development patterns.

Primary access to the Town is via Vermont Route 30 stretching from Brattleboro to Middlebury, and via Route 73, extending from Rochester to Orwell. The highways are the single most important component of the transportation system. They provide access for commercial, private and emergency vehicles to all parts of the Town, as well as linking Sudbury to the rest of the Region and State. They also provide for the movement of goods and services, and for recreational activities such as bicycling and walking.

Transportation facilities in or available to the residents of Sudbury include highways, rail, bus, air, paratransit, and trails for biking and walking. The roads, with some recommended improvements, are adequate to provide for Sudbury's needs; no new roads are planned for the Town.

Sudbury has 31.5 miles of traveled highways- 9.6 State highways and 21.9 of Town highways. State highways include 6.4 miles of Route 30 and 3.2 miles of Route 73. The Town highways are Class 2 (7.7 miles) and Class 3 (14.2 miles). Route 144, of which 1.75 miles are in Sudbury, is a State road that is jointly maintained by Sudbury and Hubbardton. All other routes, private and public, are class 4 highways.

The Agency of Transportation's State Transportation improvement Program lists no

roadway project for Sudbury. Previously, major flooding problems existed on Route 73 in springtime due to rising levels of the Otter Creek, consequently necessitating the closure of the road for weeks at a time and rerouting of traffic to the Leicester- Whiting Road to the north. In 2013, the Agency of Transportation funded a project to raise segments of Route 73 that were routinely flooded, which has reduced flooding of the road and improved access to Brandon in the spring time.

One intersection in Sudbury is classified as a High Crash Location by the Vermont Agency of Transportation: Route 30, Route 73, and Town Road 8. From 2008 to 2012, 5 crashes were recorded at that site, with no resulting injuries or fatalities. It has been noted that Route 73 contains a number of bad curves. From 2010 to 2014, 4 crashes occurred on Burr Pond Road, 2 of which involved injuries. Most were noted as single vehicle crashes due to excessive speed.

The most recent traffic counts taken by VTTrans at one site on Route 30 and one site on Route 73 were in the year 2012 and yielded an average daily count of 1800 vehicles 0.7 miles south of VT 73 east and 1200 vehicles 0.1 miles east of VT 30, respectively. Classified as major collectors, these roads have adequate capacity to handle these traffic volumes. The automatic traffic recorders are indicated on the transportation map.

Vail Road is an officially designated scenic highway. This 1.36-mile stretch, receiving state designation in 1993, provides the framework needed to plan for the long-term protection of the road's special characteristics such as the historic, natural, cultural, scenic and recreational opportunities it provides.

Transportation in Sudbury is dominated by personal vehicles. There is no public transportation available within the Town. The

existence of multiple modes needs to be recognized and planned for with future development.

Access to freight and passenger oriented rail service is possible at Rutland, Castleton, and Fair Haven. The nearest tracks are Vermont Railway, to the east in Brandon, with no grade crossings or stops in the Town. The nearest commercial air service is found at Rutland Southern Vermont Regional State Airport in Clarendon and is also available in Burlington and Albany. The Marble Valley Regional Transit District provides services to members of the public and to clients of area social service agencies on an "on-demand" basis but has no fixed route service in Sudbury. The closest fixed route service is in Brandon where service is available between Middlebury and Rutland (a north - south route along Route 7) and between Fair Haven and Rutland (an east – west route along Route 4).

Goals and Objectives

Goal 1

Provide and maintain a transportation system that is safe, efficient, and that meets the needs of all segments of Sudbury's population.

Objectives

- Analyze and compare a reasonable range of alternatives before supporting any new transportation projects, policies or improvements.
- Connect the land use chapter of the town plan to the transportation chapter - thereby making it easier to plan for efficient land use patterns and development.
- Manage roads to meet community level demand and maintain a rural character.
- Plan land use and take actions to avoid the need to increase the capacity of town highways.

- Adopt minimum sight distance and minimum separation requirements for driveways.
- Maintain a current inventory database of culverts, roads, bridges, surfaces and drainage within the community.
- Prepare a capital improvement plan.

Goal 2

Minimize transportation energy consumption, particularly single occupancy vehicle trips.

Objectives

- Promote public transportation and establish ride sharing programs for those without vehicles.
- If appropriate, support bike lanes, greenways and pedestrian paths, particularly in conjunction with road improvement and new development projects.

LAND USE

Relationships to Surrounding Towns

Sudbury is located in the central western part of Vermont in the northwestern corner of Rutland County. Within Rutland County, Brandon is located to the East, Pittsford to the southeast, Hubbardton is directly south and Benson is to the southwest. The Addison County towns of Orwell and Whiting border Sudbury to the west and to the north, respectively.

Leicester, Orwell, Benson and Hubbardton are neighbors most similar to Sudbury. All are small, mainly agricultural and commuter towns with little industry. Many of the same concerns are shared, including declining agriculture, increasing development, conversion of seasonal homes to year-round, solid waste disposal and recycling concerns and energy and transportation issues. It would be advantageous if these were addressed regionally, rather than locally.

Brandon, the most closely connected and largest town in the area, is the nearest commercial and employment center. Physically, Sudbury and Brandon are separated by Otter Creek and the Brandon and Long Swamps. At the southern end of this common border, the land becomes mountainous and the land is in a conservation district. Route 73 provides the linkage between the two towns.

Pittsford and Leicester, both being "corner" neighbors, share no boundary with Sudbury. Route 7, a major north/south highway, runs through Leicester, Brandon and Pittsford. Another north/south highway, Route 30, runs through Whiting, Sudbury and Hubbardton, thus tying these towns together. The proper functioning of these major transportation routes is crucial to Sudbury for access, emergency response, and

circulation.

Whiting shares with Sudbury a mainly agricultural boundary – some of which is in agriculture-protection. Portions of this boundary are in swamp land.

With Hubbardton to the south, many geological features are shared, specifically the Taconic Mountain Range, Lake Hortonia, Echo Lake and the conservation area surrounding High Pond. The Lake Hortonia Association comprised of lake front landowners in both towns usually deals with any problems involving the lake. Any plan to conserve natural features should involve Hubbardton where possible.

Orwell, to the west, shares the fertile Lemon Fair valley. The area is primarily agricultural. Again, some of the Sudbury land is in agriculture protection. Route 73, which runs through Brandon to Sudbury, east to west, continues on through Orwell to Route 22-A which is another major arterial north/south highway serving a large portion of southwest Vermont.

With Benson to the southwest, Sudbury shares a short boundary in the lower valley of the Lemon Fair River. This area is used for agricultural purposes.

In viewing the land use in surrounding towns adjacent to Sudbury, most use is identical to Sudbury's and no conflict of interests has arisen. Much of the land use is agricultural and, were this to change in the future, some issues might emerge.

Throughout Sudbury and the surrounding towns runs a network of narrow paved and dirt roads. These provide a closer view of our beautiful part of Vermont for an increasing number of tourists, both in cars and on bicycles.

Future Land Use

The Future Land Use Section is shaped by the findings and recommendations made in all other elements of the Plan. It addresses the physical potentials and constraints of the land, the economic and social issues, goals and objectives of the rest of the plan, synthesizes ideas on a wide range of topics into a coherent policy on future development. The Future Land Use Section is where the Town "puts together all of the pieces" of the planning "puzzle."

While goals and objectives and maps help define the town's vision for the future, the Future Land Use Plan serves as a guide for the creation or amendment of programs (including bylaws) that implement the Town's vision. Local land use controls, for example, translate the desired development concept into a clear, attainable, and enforceable land use program.

As required by state law, the Future Land Use Plan contains both text and a future land use map. The future land use map displays the desired future development patterns recommended by the Plan, while the future land use text explains the basis or logic for the pattern and the desired sequence of land development. The map is intended to delineate those areas that are appropriate for specific land uses. The Map defines the types of uses to serve as guidelines for future development. The map is based upon information on the physical environment, such as soil depth, seasonal high water tables, slopes and overall capability to support potential development, as well as cultural information that recognizes Sudbury's historical land use trends, as well as existing land uses.

The Land Use Districts, defined in the following paragraphs, are a guide for the growth and

development of the Town of Sudbury. The characteristics of the land in these districts suggest different planning needs, issues, and community objectives. The land use districts are Village Residential, Lake Shore Residential, Rural Residential, Agricultural Protection, Flood Hazard Overlay and Conservation. These land use areas provide for a variety of residential, commercial, agricultural, and recreational opportunities for the future while considering local environmental constraints as well as existing land use patterns. This is not a zoning plan, although it provides guidance for zoning. The future land use map, designating the boundaries of each district, is an integral part of the Future Land Use Plan.

Land use is closely linked to transportation and considering future development within the context of existing roads will play a large part. The Town Policy is to construct no more roads. It will be insightful for future development to look at tools such as shared rights-of-way, cluster housing, and Planned Unit Development (PUD) to encourage flexible lot designs, and accommodate access while working with the existing transportation network. Flexibility is needed as the terrain varies considerably in septic suitability, wetlands, steep slopes, rocky outcrops and agricultural soils. Flexibility is also supported in the goal to encourage landowners to develop their property in a manner that retains the greatest possible amount of prime agricultural land for traditional uses and forest land for supporting wildlife and a healthy environment.

The goals of maintaining the rural atmosphere, and protecting and preserving historic, cultural and environmental resources, while also encouraging small business development and the creation of a village center are also reflected in this plan.

Land Use Districts

Development Districts

Village Residential (R-1)
Lake Shore Residential (R-1/2)
Rural Residential (R-10)
Conservation (Con.)
Agricultural Protection (Ag.P.)
Flood Hazard Overlay

Village Residential (R-1)

Sudbury Village contains the largest concentration of residential development in Sudbury. Although the district is indicated on the map the boundaries of this area should be considered fluid, in that as orderly development occurs, it may expand. It contains the community's public buildings, providing a center for community interaction, and a sense of place. Access to the Village is very good, given its location along the major transportation routes and their intersection.

The Sudbury Village Residential District contains some of the Town's existing built-up areas and suggests where future development should be most compact and is most amenable to a mixture of uses. The area, in general, is characterized by a mixture of open and wooded lands. Residential, agricultural and commercial uses, in the form of the town clerk's office, Town Hall, Hill School, cemetery and VTrans Maintenance facility share the district. The district is open, with scenic vistas and varied terrain, giving it a separate appearance and character that distinguishes it from other, more agrarian or forestry-oriented parts of the community.

Specific recommendations for the Village Residential District include the following:

- Future denser residential and commercial growth in Sudbury should be targeted for this district.

- Regulations should consider a mixture of uses, housing types and affordability levels.
- Lot layout and building design should reflect the area's character.

Future Development

The pattern of settlement shall maintain and reinforce Sudbury Village as the focus of the town. The density and character of settlement shall be compatibly integrated with the existing development and because of the location, proximity to services, and natural features, growth can be accommodated with relatively minor impact. Wherever possible, the Town encourages developments to use the least amount of land possible for private residential uses in order to create a compact commercial area and help to retain land for agriculture uses, particularly in other districts.

Lake Shore Residential (R-1/2)

The lakes and shoreland areas, described in detail in the Natural Resources section of the plan, are an important part of the landscape and lifestyle in Sudbury. Consisting of seasonal and year-round residences on relatively small lots, the lake shore district has been designated to protect the scenic beauty, recreational opportunities and environmental quality around the shores of the lakes including Lake Hortonia, Burr Pond, and Echo Lake.

Future Development

- Any future development should be consistent with the existing development and because of the fragile resources and limitations to development, compatible commercial facilities and services will be considered, after review of their potential impacts.
- Public access to important resource areas should be retained as much as possible.

Rural Residential District (R-10)

The remaining portion of the Town falls in the Rural Residential District, which encompasses all existing residential properties, and all lands currently used for agricultural purposes. Historically, these uses have been compatible, and it is anticipated that continued residential, agricultural and commercial uses should take place in the Rural Residential District.

Future Development

This district is intended to provide land area for low-density residential development, farming, forestry, recreation and other rural land uses. Sudbury does not have municipal sewer or water service which necessitates low density development. Growth should be managed and consistent with the rural character of the area and site conditions. Despite the limitations on clustered development, conservation of open spaces and natural resources should be a high priority to maintain Sudbury's rural atmosphere. For any development (excluding residential development and agricultural development) that may occur in this district, the development cannot be sited in prominently visible locations on hillsides or ridgelines, and must minimize the clearing of natural vegetation.

Conservation District (Con.)

Conservation areas contain lands that are very sensitive to development for a variety of reasons. They are generally characterized as significant natural resources such as wetlands and stream banks, productive forests, high elevations, steep slopes (often with shallow soils), and areas of scenic, ecological, cultural or historical significance. Lands included in the district are generally unsuitable for development because of the poor soils, steep slopes, poor access, and the presence of many natural habitats of importance to the town.

This District only contains lands that are unconditionally protected from development, which are:

Otter Creek Flood Plain. This includes all lands determined by map inspection or survey to lie below the three hundred eighty (380) foot contour line of elevation on the U.S. Geological Survey map. Agricultural uses only are permitted.

High Pond Reservation. This includes all lands in the so-called Burden estate, and may be extended to include any properties in the Town whose owners request inclusion in the land controlled and/or owned by the Nature Conservancy.

Government Hill. This includes lands surrounding the peak of Government or Signal Hill (BM 1089) lying above the nine hundred (900) feet of elevation contour line, U. S. Geological Survey Map.

Bald Hill. This includes lands surrounding the peak of Bald Hill (BM 713) lying above the five hundred forty (540) feet of elevation contour line, U.S. Geological Survey map.

Future Uses

In general, lands in the Conservation District are suitable for low-impact recreational uses, such as nature and hiking trails, hunting, etc, but intensive recreational activities, such as all terrain vehicular use is not appropriate or should occur only in designated areas. Specific recommendations for the district include the following:

- All forms of development shall be directed to other areas of the town;
- Public access to important resource areas should be retained as much as possible.

Agricultural Protection (Ag.P.)

The Agricultural Protection District's primary objective is the preservation of Sudbury's important agricultural resources. Currently it is a single parcel on which the Vermont Land Trust has an easement. The area is characterized by clayplain forest.

Future Development

Development in the Agricultural District should, to the greatest extent possible, maintain the low-intensity, active use character of the land. The Town encourages the continued development of agricultural and forestry enterprises in this district. Specific recommendations for the Agricultural District include the following:

- Subdivisions should be designed to preserve "farmable" lots;
- Roads should be maintained to permit easy transportation of agricultural commodities;
- Water supplies should be protected through careful design and siting of septic facilities and through the use of best management practices and required agricultural practices.

Retaining large tracts of undeveloped land in areas identified as high resource value for agriculture is vital to ensuring the future viability of farming, prevent the fragmentation of land into parcels too small to farm, and preserve open space. In order to insure that these lands may remain suitable for agricultural use in the event of future development, permanent zoning regulations shall contain provisions that will encourage cluster development.

This Plan, after adoption by the Townspeople of Sudbury, will be implemented by the Unified Development Ordinance and other pertinent ordinances.

Flood Hazard Overlay

The Flood Hazard Overlay District includes all lands in the Town of Sudbury identified as areas in the 100 year floodplain, of special flood hazard on the National Flood Insurance Program maps. The overlay district is intended to protect the health, safety, and welfare of residents and the community in these flood-prone areas. As the interface between land and water, these shorelines and streambanks must be considered fragile areas. Certain species of wildlife are greatly dependent upon the particular habitat found there. Vegetation along the water's edge acts as a stabilizing force, preventing erosion and siltation, and providing shade to cool water temperatures. Effluent leaching from septic systems placed too close to the water's edge are very likely to pollute ground water and surface water.

Land Use Goals and Objectives

Goal 1

- Protect fragile areas and resources, including:
 - Wetlands and their buffers
 - Floodways and floodplains
 - Moderate and steep slopes
 - Groundwater resources and recharge areas
 - Significant and/or connected wildlife areas
 - Historic, archeological and cultural features

Scenic viewsheds from public roads

Objective

Perpetuate the legacy and importance of Sudbury's unique natural areas and historic sites.

Goal 2

- Maintain agricultural lands, especially those with prime ag soils and productive woodlands.

Objective

Sustain the rural character and resource based economic opportunities in Sudbury.

Goal 3

- Accommodate continued patterns of existing land use.

Objective

Encourage a mixture of uses and a variety of housing types where appropriate

Goal 4

- Maintain a land use pattern of a densely settled village with future development radiating from the town center that may be efficiently served by community facilities and services without undue adverse impact on the environment and municipal costs.

Objective

Support a greater concentration of housing and businesses within the Village District to strengthen its role as the center for the town.

Goal 5

- Avoid unplanned growth.

Objective

- Continue to enforce flood hazard regulations
- Within a given district, regulate to ensure compatibility of all permitted land uses.
- Revise Unified Development Ordinance to conform with the Town Plan and to permit and control compatible land uses, and limit incompatibility.
- Encourage participation in the state current use value program.

REGIONAL COORDINATION

Regional Coordination

Sudbury is part of Rutland County and the relationship between this Town Plan and the development trends in the area and plans for the surrounding communities have been considered during the planning process. Towns adjacent to Sudbury include Brandon, Pittsford, Hubbardton, Benson, Orwell, Whiting, and Leicester. Future land use pattern proposed in Sudbury's Plan is generally compatible with neighboring communities and also is consistent with the Rutland Regional Plan, adopted in June of 2015. Sudbury continues to have community representatives serve on regional committees such as the Regional Planning Commission and the Rutland Region Transportation Council.

Additional Public Outreach

A downloadable draft of the Sudbury Town Plan will be available in "pdf" or Adobe Acrobat format on the Rutland Regional Planning Commission website (www.rutlandrpc.org) as well as prior to the public hearings on the approval of the Plan.